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THE ETIOLOGY AND PATHOLOGY OF ARTHRITIS *

RALPH PEMBERTON, M.D.
PHILADELPHIA

It is common knowledge that infections, especially focal in nature, have much to do with the causation of rheumatoid disability. Close students of the subject know, however, and none better than orthopedists, that other factors operate to precipitate and especially to perpetuate the disease. The great importance of the doctrine of focal infection is not to be minimized but it is also of the highest importance to determine the limitations of this principle and, above all, to determine how it operates. There has been a temptation to regard the phenomena of arthritis as due solely to the local depredations, so to speak, of micro-organism, especially streptococci, in situ; but it can easily be shown that proof to this end is far from complete and that other kinds of influences must be considered in both the development and the subsidence of the disease. The study of arthritis cannot be adequately conducted from a fixed external point of view if we are to become aware of the basal phenomena constituting it.

It is important to appreciate that arthritis is only an expression in the joints of the underlying rheumatoid state operative in many tissues of the body. The processes of deposition and removal of bone are conspicuous phenomena of the disease; but it is important to note that, whether or not we invoke the presence of bacteria to incite them, the actual translation of the radicals calcium phosphate and calcium carbonate must be conceived, in part at least, in terms of established chemical principles, precisely as in the physiology of bone in general.

In order to explain, on the one hand, the unfavorable action of focal infection at a distance, the effect of exposure, fatigue, overeating, the menopause and the high incidence of arthritis in midlife; and, on the other hand, to explain the action of factors making for convalescence, such as heat, massage, exercise, a reduced diet and metabolic stimuli like radium and arsenic, it is necessary to admit a disturbance of underlying physiologic function expressing itself widely throughout the economy and subject to many influences.

These considerations have led to a study of the disease from the standpoint of dynamic pathology, and some observations resulting from this concept are here presented.

Putting aside for the moment the important bacteriologic avenue of approach, there are some other leads for unraveling the tangled skein of this problem. Mention can be made of the most important only. Studies in the army by my associates and myself [1] revealed a few disturbances of a chemical nature which included a slightly lowered basal metabolism in 20 per cent of the cases and a delayed removal of glucose from the blood after ingestion by mouth. The last mentioned parallels, in a striking way, the incidence of both focal infection and the phenomena of arthritis as has been shown by many other workers.[2] Removal of the causative infection, or recovery from the arthritis or both, is accompanied, by and large, by a return to normal of the delay in removal of glucose. The inability of the arthritic patient to remove ingested sugar as rapidly as normal from the blood is by no means specific for this disease, as it also follows certain thyroid and a few other disturbances.[3] This lowered sugar tolerance, moreover, is not diabetic in nature, as the sugar is eventually completely burned. As will be brought out later, it bears no relation to the diabetic process and can be brought about by a very different mechanism. It does, however, undoubtedly reflect part of the underlying pathologic processes and should be regarded in the light, for example, of a leukocytosis or fever.

This delayed sugar removal, therefore, occurring in 60 per cent of arthritic patients, was made the subject of much study in the belief that data throwing light on its nature and mechanism would also throw light on at least part of the arthritic complex.

On the basis of the hypothesis previously published [4] that the phenomena of arthritis bear some relation to the blood flow of the part in question, studies were undertaken on the blood gases in arthritis and also during conduction of a test revealing a lowered sugar tolerance. To omit details elsewhere cited, suffice it to say that during a test revealing a lowered sugar tolerance the blood which contains the large amount of inadequately removed sugar contains also a higher percentage saturation of oxygen than it did immediately before the test. An attempt was made to explain this rise in oxygen on the basis of chemical changes in the affinity of hemoglobin for oxygen but no alteration could be detected in the dissociation curve of hemogoblin for oxygen and carbon dioxide. It has been noted, however,[5] that during

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Pemberton, Ralph; and Robertson, J. W.: Studies on Arthritis in the Army, Based on Four Hundred Cases, Arch. Int. Med. **25**: 231 (March) 1920. Pemberton, Ralph; and Buckman, T. E.: Ibid. **25**: 335 (April) 1920.
2. Fletcher, A. A.: Dietetic Treatment of Chronic Arthritis and Its Relationship to the Sugar Tolerance, Arch. Int. Med. **30**: 106 (July) 1922.
3. Pemberton, Ralph; Cajori, F. A., and Crouter, C. Y.: Influence of Focal Infection and the Pathology of Arthritis, J. A. M. A. **85**: 1793 (Dec. 5) 1923.
4. Pemberton, Ralph: Further Observations on Arthritis and Rheumatoid Conditions, Am. J. M. Sc. **166**: 833 (Dec.) 1923.
5. Pemberton, Hendrix and Crouter: Studies on Arthritis: The Blood Gases and Blood Flow, J. Metabol. Research, **2**, September, 1922.

exposure of the body to external heat in the form of an electric bake, a comparable rise in the oxygen content of the blood occurs, due in this instance to the increased rate of circulation and inability of the tissues to remove a proportionate amount of oxygen. Analogous results have been observed [6] in blood leaving a hyperemic area, under which circumstances it contains more oxygen and less carbon dioxide than normally. By analogy, therefore, it appeared that the rise of oxygen in the blood revealing a lowered sugar tolerance could be explained on mechanical grounds. Experiments were therefore conducted with the aim of detecting whether there could be any increased rate of blood flow in arthritis, but these proved unavailing. Thus, it was thought that an increased rate of blood flow might induce a lowered sugar tolerance by means of an unduly rapid absorption of sugar from the gastro-intestinal tract. However, administration of urea and potassium iodide, coincidentally with the sugar, showed that whereas the sugar rose to the high concentrations mentioned, the urea and potassium iodide rose incommensurately or not at all.

Recourse was therefore had to the conception that the rise in the oxygen during the feeding experiment revealing a lowered sugar tolerance, and hence an accumulation of sugar in the blood was due to the failure of the blood adequately to reach all the tissues of the body, thus leaving certain components of the blood unutilized. This fitted in with the observation, previously reported,[5] that some arthritic patients showed a higher percentage oxygen saturation of the venous blood than was observed in normal persons under the condition of the experiment. This hypothesis was therefore put to the test by experiments designed to cut off or interfere with the circulation in three of the four limbs of the body during the conduction of the usual test of sugar tolerance. The condition thus induced simulated to some degree that in which relatively large areas of capillary beds are closed with consequent denial of the usual access of blood to the tissues concerned. The experiment itself consisted in placing arthritic and normal subjects who had been found to have a normal sugar disposing mechanism in dorsal decubitus, with two legs and one arm sharply elevated at right angles to the body. Under these circumstances it was possible to show that, in 57 per cent of the arthritic patients studied, a lowered sugar tolerance of the kind under discussion can be artificially induced. In view of the close parallelism between focal infection, arthritis and a delayed removal of sugar this is strong evidence that at least part of the pathologic change of the rheumatic syndrome consists in interference with or obstruction to the blood flow, presumably in the finer capillary beds. The manner in which this is produced, by focal infection or other agents, is not yet clear, and speculation will be withheld at this time.

That this general conclusion carries with it a strong degree of probability can be attested on purely clinical grounds by all who have had experience with the important changes induced in the blood flow by massage and external heat, which are among the most valuable agents in the treatment of arthritis. Furthermore, on purely experimental grounds the work of Krogh, Carrier and other physiologists has shown the large influence of stroking and such measures as massage on the restitution of blood flow in closed capillaries and capillary beds.

In somewhat the same connection, an interesting conclusion bearing on the pathology of arthritis was reached from a critical study of the effects of exercise, heat and massage on the human body. These measures are all of value to the arthritic patient and it was thought desirable to determine, if possible, the specific nature of their influences from the standpoint of physiologic chemistry. Omitting details, the effect of exercise is to induce a systemic acidosis; the effect of heat is to produce a systemic alkalosis. The influence of massage, however, which would seem to partake somewhat of the nature of both measures, especially exercise, is in neither direction. It induces no production of lactic acid such as characterizes active exercise, and therefore differs sharply in its influence on muscle tissues. It has, however, a definite influence on the blood flow through capillary beds and on the red cell count, the latter of which it increases, and the conclusion was unavoidable that between these three measures of undoubted value to the rheumatoid syndrome the chief common denominator operative for good is their influence on the circulation.[7]

Other observations of interest have sprung from the foregoing premises. In view of the changes in the blood and those suggested in the finer blood vessels, it seemed advisable to make a careful study of the corpuscular elements to see whether in their morphology or number, or in any respect, further corroboration could be obtained as to changes in the peripheral circulation. Studies were therefore conducted by my associate Dr. E. G. Peirce on the red cell count. It should be mentioned that, as ordinarily carried out, the red cell count gives very variable figures and it was necessary to perfect a meticulous technic. After establishment of this technic, there was observed, on pricking the finger with the usual lancet, carefully avoiding massage and all extraneous influences, a difference in normal persons between the red cell count of the first drop of blood obtained and the fourth or subsequently flowing drops of blood, in that the first drop tended to give a higher cell count in most cases. On carrying out these observations on the arthritic patient, however, we encountered an opposite state of affairs, in that a majority of these patients showed a lower cell count in the first drop than in the fourth or subsequent drops of free flowing blood. This difference was sometimes small but sometimes extended to many hundred thousand or more.

Since the personal equation might play an unsuspected rôle, these observations were repeated by my associates Dr. F. A. Cajori and Miss C. Y. Crouter, using photomicrographic methods and obtaining permanent records of the fields observed. The counts could thus be repeated and checked up by several observers, under controlled conditions. Essentially the same results were obtained, although with somewhat less frequency, and at present the data indicate that in 70 per cent of arthritic patients, as compared with 40 per cent of normal persons, a lower number of cells is encountered in the first blood issuing from a finger prick than in the subsequent free flowing blood. The blood thus obtained is not arterial and comes from capillary beds, and it is well recognized that, in the supposedly normal, these are open to many influences which change their permeability. It is to be expected, therefore, that changes of this order would not infrequently be encountered in normal subjects also. These

6. Wells: Chemical Pathology, Ed. 5, Philadelphia, W. B. Saunders Company.

7. Pemberton, Ralph; Cajori, F. A., and Crouter, C. Y.: The Physiologic Effect of Massage, J. A. M. A. 83: 1761 (Nov. 29) 1924.

facts are interpreted tentatively as indicating that the lower count of the first issuing blood represents blood obtained from more or less closed capillaries, containing a relative paucity of cells, probably diluted by tissue fluids. These results cannot be explained on the basis of inactivity, disuse or atrophy, as apparently robust and active persons sometimes showed them. Moreover, it was noteworthy that even in robust arthritic patients great difficulty was sometimes encountered in making the wound bleed. This fact is strikingly confirmatory. Various phases of this problem are now under investigation with the aim of a detailed report; but, whatever the full explanation, there is evidently in the arthritic patient a tendency toward a diminution of the cellular elements, in the first blood obtained, at the extreme periphery.

As mentioned at the outset, it is important to correlate, if possible, the removal and deposition of bone salts with chemical changes in the blood, and any evidence bearing on this point should have value. It is a familiar fact to orthopedists that rarefication of bone occurs as the result of disuse. Allison and Brooks[8] have shown that this atrophy applies to other tissues, and is independent of the nerve supply. In view of the changes in the blood gases observed in patients with arthritis, as discussed above, it was particularly desirable to see whether analogous changes in the blood gases could be shown to accompany conditions under which bony tissue is known to be in part removed as shown by the roentgen ray. In collaboration with Dr. W. Estell Lee and Dr. H. McKean Downs, whose kindly interest and skill have made these observations possible, studies were undertaken by Cajori, Crouter and myself on the gases in the blood from the femoral vein in cases of fracture of the lower leg which had been kept at rest in casts without massage for periods of six weeks or more. In view of the relative difficulty of this procedure and the time required to accumulate a large number of cases, it seems justifiable to make preliminary mention of the fact that in a definite proportion of these cases the blood returning from the fractured inactive limb has been almost arterial in nature, as shown not only by its chemical composition but also by its obvious color. In one case the percentage oxygen saturation was nearly twice as great in the fractured as in the sound limb. This therefore constitutes, as far as it goes, a definite correlation between removal of the lime salts of bone and a failure of utilization of the normal amounts of oxygen. Since the limb is inactive, it can properly be advanced that the tissues therefore need less blood; but it cannot be supposed that metabolism nevertheless continues in a perfectly normal manner on a lower plane. There is unmistakable evidence from the roentgen ray that this is not the case, as shown by the well known bony atrophy of disuse in which, indeed, muscular and other tissues share. The problem is too large to admit of full discussion here, and it must suffice to point out that the blood gas changes that have been observed sometimes to accompany loss of bone salts from disuse are of the same order as those encountered among arthritic patients under appropriate conditions of observation. The suggestion herein contained that absorption of bone, in at least the atrophic or proliferative type of arthritis, depends in part on interference with the local blood supply needs no emphasis. Fuller discussion will accompany later publication of the details.

8. Allison, N., and Brooks, B.: Surg., Gynec. & Obst. **33**: 250 (Sept.) 1921.

Other considerations of interest bearing on the etiology and pathology of arthritis could be advanced, did time permit. One can state with reasonable confidence, however, by way of summary, that arthritis and the rheumatoid syndrome depend for their local pathologic manifestations, in part at least, on a disturbance in the finer blood supply of the tissues, probably in the capillaries, such that the local metabolic processes are interfered with. A secondary disturbance of the acid base equilibrium, at these local sites only, probably plays an important rôle in the removal and deposition of bony tissue, although operative in other tissues equally. The familiar symptoms of fatigue, local weakness, headache, etc., shown by the patient with arthritis, are recognized consequences of anoxemia, as is well illustrated among aviators. Correlation of this conclusion with the beneficial influences of rest, massage, heat, exercises and such agents of metabolic influence as arsenic constitutes a fairly complete picture.

In connection with the value of rest, it is of much interest to note that the work of Bock[9] and his associates has shown that the blood flow under normal conditions is greatly increased by the recumbent posture. Further, the benefit to selected cases of the postural rest and exercise advocated by Goldthwaite, Osgood and their associates is probably partly to be explained on this premise.

TREATMENT

I regret that space will not permit discussion of treatment, because I am convinced that adequate presentation of the pathology of arthritis without consideration of certain important facts in treatment, or vice versa, is impossible. It must suffice to emphasize that the weight of evidence pointing to a disturbance in basal physiology explains the futility of most therapeutic measures aimed at one phase of the problem only.

A brief summarization can be made of the several categories into which treatment must fall, however, in order to bring out further data bearing on the pathology. These categories include the removal of the cause when this is possible, as in many instances of focal infection. This needs no emphasis. Another procedure in properly selected cases is the institution of a low calory diet,[10] which possibly has its influence also through the removal of some of the factors productive of toxins, but also operates possibly through "adjusting the load" to the local or general physiologic condition, handicapped in the way suggested above. Colonic massage and irrigation afford another important measure whereby causative toxic influences can be removed or modified.

Benefit can sometimes be achieved, in infectious cases especially, by autogenous or other vaccines, as well as by nonspecific protein injections; but these measures need no emphasis at this time.

An important chapter, however, in the question of treatment, consists in a readjustment toward normal of the dislocated general physiologic condition, involving largely the musculature and locomotor system but also the gastro-intestinal tract, and often the nervous system. This disturbance is a function in part of the active arthritis and, in part, of the secondary effects of invalidism. Appreciation of the influence of a narrow costal angle, shallow diaphragmatic descent, the kyphotic posture, etc., on the whole syndrome is conspicuously lacking in general medical practice, although the recon-

9. Field, H., Jr., and Bock, A. V.: J. Clin. Investigation **2**: 7 (Oct.) 1925.

10. Pemberton, Ralph: The Use of Diet in the Treatment of Chronic Arthritis, Am. J. M. Sc. **161**: 517 (April) 1921.

structive measures developed by orthopedists have here undoubted value. Given a disturbance of circulation, the aggravating effect of inactivity and of "pooling" of blood in deponent parts finds its explanation and accounts for much of the "vicious cycle" in chronic arthritis.

Of great importance also in the restoration toward normal is the intelligent use of baking, hydrotherapy, massage and exercise. Agents that favorably influence the metabolism, such as arsenic and radium, are of large value, and the influence of systematic rest of the whole body may be a sine qua non of successful therapy.

In connection with the use of diet, it is appropriate to mention here recent work on the physiology of synovial fluid.[11] It has long been recognized that the central articular area of joint cartilage is without blood supply, and there have been many theories but inadequate data to indicate how it obtained its nutrition. It has not been known definitely whether the synovial fluid can supply pabulum to cartilage, except so far as observations on the growth of loose fragments of cartilage, " joint mice," suggest this. It was somewhat surprising, therefore, to discover not only that the synovial fluid is in intimate and active communion with the blood stream, but also that glucose ingested by mouth reaches the joint fluid from the gastro-intestinal tract with such rapidity as sometimes to exceed in concentration the glucose in the blood. As cartilage is one of the tissues of the body highest in glycogen, it requires an abundant supply of glucose, and the means of getting it is obviously at hand. That synovial fluid therefore carries nutriment to avascular cartilage can hardly be doubted. It is also plain, however, since glucose can reach concentrations in the joint fluid even greater than obtain in blood, that the way is open for access from the intestinal tract to the joint fluids of other soluble substances, including toxic material or normal materials in excessive amount. Their influence on the joint structures must be considered.

Finally, it is appropriate to mention an observation in the direction of therapy based on the facts and hypothesis mentioned above. If it is true that the phenomena of arthritis and rheumatoid disability are in some part due to a disturbance in the capillary beds of the nature of vasoconstriction, it should follow that benefit might be expected from measures that aim at opening up such constricted areas. This is indeed the explanation of the value of massage and heat, as already outlined; but there is also a limited amount of evidence to indicate that the use of such vasodilators as sodium nitrite may sometimes be followed by therapeutic benefit. This statement is made in the nature of a preliminary communication, and it is not to be supposed that anything in the way of a panacea is hereby suggested. That any influence in this connection, however, should ever be observed comes, nevertheless, in the nature of a partial corroboration of the principles outlined above. It is desired, therefore, to place on record the fact that in a limited number of selected cases a favorable influence was observed on the arthritic and rheumatic disability by the *adjuvant* use of a drug of this nature. Observations are pending along this line with the aim of a later contribution.

Preliminary report can also be made at this time of observations which serve as a corollary to this. Cajori, Crouter and I, in collaboration with R. B. Osgood, have been able to show, among eight arthritic patients with a lowered sugar tolerance who were placed for varying periods on sodium nitrite or analogous drugs, that this lowered tolerance returned somewhat toward normal in one case and markedly or entirely toward normal in five cases, or more than 60 per cent in all. To be able, therefore, to induce a lowered sugar tolerance by interference with the blood flow; to be able to modify or restore to normal a lowered sugar tolerance by opening vascular channels with vasodilator drugs; to be able to record some cases of arthritis in which the exhibition of these drugs as adjuvants was followed by clinical benefit, constitutes substantial and further evidence that changes in the circulation afford at least part of the pathology of arthritis and the rheumatoid syndrome.

11. Cajori, F. A.; Crouter, C. Y., and Pemberton, Ralph: The Physiology of Synovial Fluid, Arch. Int. Med. 37:92 (Jan.) 1926.

SUMMARY

Previous published observations have shown the parallelism of a lowered sugar tolerance with focal infection and active arthritis. Study of the mechanism of this lowered tolerance has shown that it is not diabetic in nature and is apparently dependent, in part at least, on changes in the circulation. Conversely, by making experimental changes in the circulation it has been possible to induce a lowered sugar tolerance in 57 per cent of selected persons showing previously a normal tolerance.

Attention is drawn to the close contact of the synovial fluid with the blood stream, by virtue of which glucose ingested by mouth may quickly reach concentrations in the synovial fluid higher than obtains in blood. Evidence is thus afforded of the adequacy of the synovial fluid for nutrition of the avascular portions of cartilage. It is also clear that many substances from the gastro-intestinal tract have a hitherto unsuspectedly ready access to the joint cavities. The influence on joint structures of deleterious substances and of improper amounts of otherwise benign substances absorbed from the gastro-intestinal tract must be considered.

The conception that at least part of the pathology of arthritis arises from changes in the blood supply finds some of its support in the experimental studies already published on the influence of massage, exercise and external heat.

Partial corroboration of such a change in the peripheral circulation in arthritis is obtained from studies on the red cell count made under properly controlled conditions. In these observations the red cell count was, in general, lower in the drop of blood first issuing than in subsequent free flowing blood, whereas in normal subjects the opposite was more often encountered. Secondary invalidism did not afford an adequate explanation.

Further evidence of involvement of the circulation is afforded by the favorable influence, in a limited number of selected cases, of agents causing vasodilatation, such as sodium nitrite, when used as adjuvants. This statement is preliminary in nature, and caution is urged against undue expectations and against the possibilities of danger.

Of greater significance in its bearing on a change in the circulation is the fact that in more than 60 per cent of the arthritic cases with a low sugar tolerance so far studied, it has been possible to cause this lowered tolerance to return to or toward normal by the administration of vasodilator drugs. That at least part of the mechanism of the rheumatoid syndrome is dependent on changes in the finer circulation is thus further and strongly suggested.

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ABSTRACT OF DISCUSSION

DR. FRANK R. OBER, Boston: I have been interested in Dr. Pemberton's work because it has given us one more hope in the progress of the treatment of arthritis. I have followed his methods for five or six years with a good deal of satisfaction, and I think that the proportion of my arthritis cases that are relieved is much greater than it ever has been before. I am interested in having him come here and read a paper, which shows that there is somebody working who will do something to improve our methods in the diagnosis and treatment of arthritis.

DR. WALTER G. STERN, Cleveland: Most orthopedic surgeons are purely clinical workers and have little first-hand knowledge of the field which Dr. Pemberton has covered in his paper. For my part, I hope that the premises laid down by the speaker as the basis of his summary are all true; and as far as my clinical experience has gone, I have found that several of them are true. We agree with him and he agrees with us that many cases—possibly the majority of cases of arthritis—are due to a basic disturbance of the metabolism of the joints from the absorption of infective or toxic materials from the bowels or elsewhere; but we also know that, besides these cases of infection, we have cases of arthritis caused by more obscure and unknown conditions. Many years ago Riedinger of Wurzburg, in some experimental work on arthritis, tied off or destroyed the small veins leading from the patella in order to disturb the circulation of the patella, and in a fair proportion of his animals found that this disturbance of the venous circulation had developed a condition that more or less resembled the cases of hypertrophic arthritis of the human being. I believe that Dr. Pemberton's observations on the lowered sugar tolerance in arthritis are confirmed by the experience of other men; although there might, of course, be clinicians doing experimental work who would disagree, since, I am told, the exact sugar tolerance of any individual is very hard to obtain. It depends on the kind of sugar that we use, the number of observations we make in one day, and also on the country in which the patient lives; for the American, with his high sugar consumption, has a much greater sugar tolerance than has the European; but be that as it may, I believe that such work as Dr. Pemberton is doing is one of the means that will lead us out of the maze of darkness and ignorance we now have on the subject of arthritis.

DR. C. L. LOWMAN, Los Angeles: I am particularly interested in this paper because we have made a special effort to meet the needs of these arthritic patients and have a very thoroughly equipped hydrotherapeutic and physiotherapeutic equipment. We have tried to attack this problem from as many angles as possible and devise curative methods that would be effective. We have paid attention to all points of focal infection, but feel that extraction of teeth and tonsils on a large scale has been overdone. All of us see patients who have had their teeth extracted, tonsils out and appendixes removed without any influence on their arthritis. We have found on investigating the intestinal tract, which is probably the most commonly overlooked, many patients who have more or less statis, poor intestinal function with a high percentage of cases a definite protozoan infestation. We have found in routine stool examinations at the Orthopaedic Hospital-School that from 8 to 10 per cent of all patients, ranging in age from babies to 20 years, have such infection. In arthritic cases for the last year or two we have found percentages of parasitic involvement as follows: *Ameba histolytica*, 25; *Chilomastix*, 50; *Trichomonas*, 25. The relation of protozoa to arthritis is still in doubt, but this paper shows that there may be a more definite connection along chemicophysiologic lines as well as pathologic than we have appreciated. The definite statement that joint areas are specifically open to invasion of toxic products from the intestinal tract is most illuminating. We can confirm Dr. Pemberton's comments on the effect of heat and massage, hydrotherapy and rest as being of definite value. We shall be interested in further investigations as to the relation of parasitic involvement in investigating the analogy between his observations in arthritis and the condition of capillary circulation in other cases showing parasitic involvement but without joint symptoms. The characteristic picture is one of low red cell count, intestinal upset, tendency to acidosis and a general toxic picture shown in the influence on other organs than the joints in these cases of parasitic involvement. It is possible that the influence of these organisms paves the way for the onset of joint disease because of the general toxic factor rather than immediate infectious relation. All patients improve while in bed, probably because of lessened diet, and in this way we probably have been meeting the requirement of obtaining a low calory diet. Dr. Pemberton's sympathetic interest in the problems of the orthopedist emphasizes that attention to medical orthopedics is important and that we must cooperate with the medical men.

DR. PHILIP H. KREUSCHER, Chicago: Any one who does anything in the way of investigation in these severe types of arthritides and finally arrives at the definite conclusion at which Dr. Pemberton seems to have arrived is to be congratulated. These patients become wall flowers in physicians' offices and finally find their way to the osteopath and chiropractor unless something very definite is done for them. Some years ago I had occasion to investigate something over 900 cases of arthritis from the standpoint of etiology. These cases had occurred in the practice of Dr. John B. Murphy, and the histories gave the following results: Twenty-five per cent of the arthritis patients had complained of some type of throat infection, usually tonsillitis; 18 per cent gave a history of some paranasal sinus infection; 17 per cent gave a history of gonorrheal infection; 12 per cent had infection in the genito-urinary tract, and 5 per cent gave histories of chronic intestinal stasis. At that time we did some original work and were able to produce an acute arthritis by injecting infectious material taken from the arthritis cases into the ear veins of guinea-pigs and rabbits. Ninety-seven per cent of the rabbits injected at that time showed arthritis in one or more joints within seventy-two hours. In many instances, examination of the pus taken from these infected joints showed the same type of organism as has been injected. Clinically, we have been able to recover the organisms from the synovial capsule and synovial villi in cases of metastatic arthritis. It seems to me that it is not often necessary to follow along the line which Dr. Pemberton has followed in order to find the etiologic focus. The fact that these patients do not recover when they have teeth or tonsils removed does not necessarily mean that we have not found the focus of infection. We often forget that the infected joint with its infiltrated synovial capsule is a secondary focus and that from these secondary foci further infection of other joints may occur. It is my opinion that there may be a very small percentage of cases in which we are unable to find the focus, and it is in these that Dr. Pemberton's investigations will prove of greatest value.

DR. BARNEY BROOKS, Nashville, Tenn.: We have been interested in the determination of the oxygen content of the arterial and venous blood removed from diseased extremities. We have found that there is great variation in the oxygen content of the venous blood if the samples of blood are removed with the extremity in different positions. Whenever any inflammatory disease exists in an extremity, the oxygen content of the venous blood is usually higher than normal, even though this inflammatory disease is presumably due to a disordered circulation.

DR. RALPH PEMBERTON, Philadelphia: I was greatly interested in Dr. Stern's comment on the production of arthritis by ligation of vessels around the patella. This is confirmatory, so far as it goes, of what I have just reported. In regard to Dr. Lowman's remarks, the difference we found in the cell count was not dependent on anemia. Replying to Dr. Kreuscher, there is nothing in my attitude in the slightest degree contradictory of the great importance of focal infection. One must realize that there are also other factors operative here, and what we are trying to study is primarily how all these various factors work to produce the tissue changes of arthritis. Dr. Brooks is correct in most of what

he has said. It is true that the superficial veins show great difference in their percentage of oxygen saturation, as Goldschmidt and Light have shown, and one must be very careful in interpreting results. Our observations after fractures are preliminary but the possibility of error in deeper vessels such as the femoral vein is much less than in the superficial veins. We have not found that there is always more oxygen in the return blood of the injured side, as there are many factors concerned; and it is interesting to observe that if the patient has had massage during his convalescence, the difference noted will not be observed; it is only when the leg is kept entirely immobile and is not massaged that we have found these discrepancies. This is not the place to discuss chemical processes, but these must be involved not only in bone atrophy from disuse but in some of the bony changes of arthritis. It is up to us to find out what these chemical changes are; and any observations that throw light on the mechanism operative in bony atrophy from disuse would have at least some primary significance in the direction of our present problem. At this time we say only that complete quiet of a limb may be accompanied not only by removal of bone salts but by such a large venous return of oxygen as to suggest acidosis and the formation of acid radicals. It is entirely reasonable to suppose that these acid radicals may then unite with the alkaline elements of bony tissue.

COLOR BLINDNESS IN INDUSTRY*

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After seven years' experience in supervising the examination of applicants for hazardous occupations, and a careful study of the literature, I am attempting here to present most of the known facts, and some of the problems still to be worked out, in the field of color blindness.

In train, yard and engine service on railways, in certain marine occupations, and to a less extent in other industries, color blindness is a hazard which has not received the thoughtful and accurate consideration which safety demands. Our navy, the Public Health Service, and especially European railway surgeons, have called attention to the insufficiency of methods in common use for detecting this defect, yet the safety of employees and the traveling public is still too often entrusted to incompetent examiners armed with improper apparatus.

A knowledge of the physics of light and the physiology of color perception is taken for granted. Attention is directed, however, to the minute difference in wave length between colors, since the entire visible spectrum varies by only about 0.3 micron, i. e., 0.3 of one thousandth of a millimeter. The theory of photochemical decomposition of the visual purple, acting on the cones, is accepted. For this reason it is evident that the ability of the retina to respond by photochemical decomposition, the number, distribution and efficiency of the cones, the efficiency of the afferent nerve tracts, brain centers and associated memory images are all factors in our sense of color.

Few facts are established in the pathology of color sensation. Of the microscopic anatomy, almost nothing is known. The incidence, according to various authorities, varies from 6.5 to 11 per cent for all types of color blindness among men, and about 1 per cent in women. Classifications are somewhat confused. Some authors are of the opinion that no two cases are exactly alike. A survey of the Italian, German, French, English and American literature forces one to the conclusion that any degree of color blindness may exist, from the inability to distinguish minute differences up to total blindness in which the subject sees all colors as shades of gray or variations of intensity.

Color blindness may be congenital or acquired. It seems to be generally assumed in the literature that the congenital type is of all degrees, is permanent, is transmitted by sex-linked recessive heredity, usually covers the whole visual field, is due to unknown pathologic conditions, and is occasionally unilateral. I have been unable to find any data as to the relative percentage of congenital, acquired permanent and temporary color defects, and those due to scotomas and contracted visual color fields.

Acquired color blindness is said to be due to toxemias, atrophy of the optic nerve, and possibly to cerebral lesions. Alcohol and nicotine poisoning are mentioned. Among railway surgeons, syphilis is believed to play an important rôle, especially in the late stages. According to Fuchs, the lesion is most commonly an atrophy of the optic nerve, causing first a loss of color sense for red and green, then yellow, and lastly blue. I am inclined to believe that acquired color blindness needs more careful study, and that many cases are said to be acquired because they were missed by previous improper examinations. At least one authority states that color blindness may be due to injury but fails to give the basis for the statement. If color blindness alone is understood, this is a pernicious and unwarranted assertion, unless backed up by proof. I do not believe the proof can be supplied.

EXTRANEOUS FACTORS

In connection with the pathology of the color sensations, a note regarding the surrounding factors should be added. Besides color, or, more accurately, hue, the human eye detects intensity and saturation. By intensity, or shade, is understood the brightness or luminosity of the light, and by saturation, or tint, is meant the purity of the color with regard to the admixture of white. The interrelations of the pathology of color perception with intensity, saturation and various eye diseases, including errors of refraction, are not yet fully worked out. Quantitative tests, mentioned later, and confusion colors have received some attention, but there is much room for accurate work. We must, however, always bear in mind that the color blind learn to distinguish colors by intensity or brightness to a remarkable degree. For this reason they are not always detected by the usual tests, and become a very real danger in certain industrial work.

TESTS FOR COLOR BLINDNESS

The means of classification are certain tests, of which I have been able to get examples or descriptions of more than a hundred. These may be classified into groups according to purpose and method.

As to purpose, a test may be qualitative, quantitative or both. It is qualitative if its purpose is to determine the presence or absence of the various colors in the applicant's spectrum as seen. It is quantitative if it determines the size and distance at which, or the density of the neutral screen through which, various colors may be seen. Sometimes the two methods may be combined in the same apparatus. Another differentiation may be made as to purpose if color blindness per se or color

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ignorance and aphasia are to be determined, or all three. Some tests determine scotomas and contracted visual color fields.

As to method, reflected light (as in worsted tests), transmitted light (as in lantern tests), and the prismatic dispersion of white light (spectroscopic methods) are all used. Confusion colors are those easily mistaken for rose or light green by the color blind dichromic, are determined by experience, and are usually prepared by a color blind artist. A test by comparison determines most total color blindness; a test which requires the applicant to name the colors shown determines color ignorance. The perimeter maps out the visual fields for color. A small dot of light at a distance of 20 or more feet, shown for an instant, shows the presence or absence of a central scotoma for that color. Some tests are very interesting and ingenious, some founded on scientific data, some on personal experience.

Group 1: The group in most common use is qualitative, by comparison of reflected light which subtends more than 5 degrees. The Holmgren worsted test is of this group and in very general use on American railways. The Thompson stick is a convenient modification, and Jenning's test is another ingenious, self-recording modification. In a subdivision of the same group are water-color washes, crayons which may be self-recording, colored powders, colored boxes, colored pellets, colored tissue paper; in fact, colored almost anything. There are at least eighteen modifications of the Holmgren test alone. The principle back of these tests is that of the confusion color—the normal pick out various shades and tints of the same hue, the abnormal confuse other hues with the rose (red) or green test colors. Undoubtedly when the worsteds are not faded, such tests pick out the red or green total blind, but fail in red-green scotoma, in detecting color ignorance, and in detecting all other forms of color blindness, including shortened spectrum. These tests, according to the most experienced observers in Germany and England, fail to pick out about 50 per cent of the dangerously color blind in marine and railroad service. They are, however, convenient tests, and if their limitations are thoroughly appreciated, of use in conjunction with other tests, but never alone, for the examination of men, in train, yard and engine service, and in other industrial work requiring color perception.

Group 2: Another group consists of tests by reflected light wherein colors are mixed by motion, such as rotating disks, tops, cylinders and cones, viewed at a visual angle of more than 5 degrees for qualitative and at a smaller angle for quantitative tests, and observed either directly or through a chromatic cell. They are interesting, some no doubt of scientific but limited value, but all not practical for our purpose.

Group 3: The complementary shadow group is based on the fact that when a colored light is thrown on a white screen and an opaque object causes a shadow on the colored surface, the shadow will be of the complementary color to the normal, and colorless to the color blind. These are so evidently unpractical for our use, and of such limited scope, that they must be discarded. For convenience in this group may be also placed the tests based on the phenomenon of successive contrast, or negative and positive after-images.

Group 4: The quantitative tests by reflected light are based on normal vision, by which one recognizes the color of a disk 1 mm. in diameter at a distance of 5 meters (Donder's formula). By various sizes of disks, or by varying the distance, an accurate measure of the strength of vision for any color may be obtained.

Group 5: A group similar to group 1, but much more practical, is based on reflected light and confusion colors. Figures are of rose or light green and are partly hidden in a backgrounud of confusion colors or disks, or the colors of figure and background are reversed. These figures are easily seen by the normal, but entirely lost to the color blind. Stilling's plates are the standard of this group, and of great use in convincing officials, and friends of the candidate. They fail to detect color ignorance, small scotomas, and some forms of blindness, including shortened spectrum.

Group 6: This consists of tests for central color scotomas. Fridenberg's instrument appearing like an ophthalmoscope, but having colored glasses instead of lenses, various diaphragms, and a spring actuated shutter for almost instantaneous exposures, is of this group. The same effect may be had in lanterns which have small diaphragms, and a means of flashing the light. A pin-point of light looked at directly must fall on the fovea, and so a central scotoma may be revealed, if time is not permitted to move the eye. Oliver's pellet test is also well devised to detect central scotomas down to 2 degrees in diameter.

Group 7: Several types of spectroscopes have been devised, the simplest form showing the solar spectrum, and the candidate is required to name the colors at the various wave lengths. If memorizing could be done away with, this test would be the most scientific of all except for central scotomas. Another type shows two spectrums, one reversed above the other, with a slit across giving monochromatic light from each; and the candidate is required to compare the two colors. Here color ignorance is also not taken into account.

Group 8: The anomaloscope, and similar instruments, form still another group for comparison of two transmitted lights, one of which is varied by optical means between red and green, mixed by addition, and the sodium yellow, which is varied in intensity (Raleigh's test). This instrument has been popular on European railways, but is not as broad in scope as some others.

Group 9: The polariscope has been used by Chibret and Tomlison (Chibret's chromatophotoptometer). Rose's polariscope is used to compare complementary colors by varying the intensity. The colors unseen are clearly demonstrated.

Group 10: Some of the color testing lanterns have the advantage of broad and accurate usefulness, simplicity of operation, and the cheapness of mechanical operation as compared with optical. Those most frequently used are Eldridge-Green's, Thompson's and Williams'. There are others, such as Welsh's, Middleton's, the English Board of Trade lantern and Donders'. Some of these lanterns test by color comparison, showing two or three colors at one time. Others test both color sense and knowledge by requiring the single color shown at a time to be named. Most lanterns have diaphragms by which quantitative tests may be made and color scotomas determined. Some have various neutral glasses (like smoke or fog to lower intensity), and ribbed and ground glass to represent rain and steam, which can be interposed between the light and the candidate as well as the color. One lantern uses gradually darkened movie film to alter intensity. The colored disks should be of the same color analysis as the roundels used in railway signals plus disks of con-

fusion colors. In the best of these lanterns, that invented by the English authority on color perception, Eldridge-Green, we have combined in a single apparatus the means to determine a shortened spectrum, a central scotoma, the quantitative value of the perception, the presence of color ignorance, the absence of any color from the candidate's spectrum, and the ability of the man to distinguish the actual lights used in railway signals under working conditions of rain, steam, fog and smoke.

CLASSIFICATION

With such a lantern, and with Stilling's plates or some other simultaneous contrast test to differentiate color ignorance, one can map out on the spectrum the missing wave lengths with sufficient accuracy; the normal easily seeing six colors.

Collins, apparently quoting Eldridge-Green, states that orange is the first color to disappear, then blue, then yellow, then red and green; and so he classifies men as hexachromic if normal, pentachromic if orange is not seen, tetrachromic if blue is also gone, dichromic when red-green blind. Monochromic vision is rare. A hexachromic man may have shortening of either end of the spectrum, or a central color scotoma. Unfortunately in my experience, the colors do not always disappear in this order, nor do I find any such uniformity in the literature.

My own judgment is that a diagram of the spectrum is the simplest and most accurate method of designating color defects. By enclosing between lines the wave lengths not seen, a very clear idea is given at a glance of the type of color vision of the applicant. To obtain such a result it is necessary to fill in, as the applicant names the colors, or misses the simultaneous contrast tests, a prearranged set of tests in tabulated form, from which the applicant's spectrum is calculated.

REJECTION OF APPLICANTS

Collins made an interesting study for the U. S. Public Health Service, coming to the conclusion that men should be rejected for marine and railroad service who had any of the following defects:

1. Those possessing a color perception containing three or less units.
2. Those possessing a greater number of units than three who have the red end of the spectrum so shortened as to prevent recognition of a red light at a distance of 2 miles.
3. Those with a central scotoma for red and green.

Taking these postulates in order, does Collins' first statement exclude all who are dangerous in train, yard and engine service? A glance at the latest specifications of the Railway Signal Association, to my mind, should convince any one that it does not. His tetrachromic class cannot see orange and blue, and hence they would confuse three out of the six roundels in daily use. I believe that an applicant should be able to distinguish clearly all colors of the spectrum, with the possible exception of orange.

With the second postulate, no one will take exception. The red roundel is nearly pure red. When slightly obscured by weather conditions, only the longer red rays are transmitted, so a man with a shortened red end of the spectrum is unable to see the signal at all. This is one of the most dangerous forms of color blindness, and is not detected by the usual application of the worsted tests.

With the third postulate, one also can have little objection, unless future experience should show that central scotomas occur for blue and yellow.

There are two other postulates that appear to me essential. The color ignorant are just as dangerous in train, yard and engine service as the color blind. From the standpoint of safety, what difference does it make if the engineer can distinguish colors clearly by comparison, if he calls a red light yellow, or a green one blue?

Another dangerous condition arises when the color sense as a whole, or in part, is much less than normal, although the applicant clearly distinguishes colors at close range. The quantitative tests given above will demonstrate this condition. Comparatively little work has been done in this field. With the smallest diaphragm of the Eldridge-Green lantern, the applicant should name unhesitatingly the red, green, yellow and blue lights at 15 feet in a dark room.

CONCLUSIONS

1. It is clear to me that one who has not made a study of color sense and its pathology is not in a position to test applicants for occupations requiring color perception.
2. I believe that the stations at which such tests are made should be reduced to the fewest practical number, and the work at each should be periodically checked.
3. The usual test by worsteds alone eliminates only 50 per cent of the dangerously color blind, and should be immediately discarded as the sole test of an applicant for train, yard and engine service on railways.
4. The Eldridge-Green type of lantern is the only lantern with sufficiently broad and accurate application to warrant the expense of purchase by industrial concerns. It should be used in conjunction with a simultaneous comparison test of the Stilling plate type.
5. For day signals by reflected light, as in semaphore arms, switch targets, station boards and flags, the foregoing tests are sufficient. The saturation and intensity as well as wave length analysis of such signals vary greatly on different railroads and at different times. Such signals should have contrasting colors to prevent confusion with the background.
6. Field tests as ordinarily conducted by railroad officials are of little value. They are supposed to be made under working conditions. As a matter of fact, they are frequently made under ideal conditions, with no conception in the mind of the official of what the tests are intended to develop, of the effect of various natural conditions, and only rarely with any knowledge of the pathology of vision. If field tests are to be made at all, they should be conducted by experts, with specially constructed apparatus using the standard roundels and flags under all natural conditions of steam, rain, fog and smoke, daylight, night, dusk or dawn, at proper distances, with controls, by a method planned in advance to cover all of the 288 possibilities.
7. For train, yard and engine service a man should see all the spectrum with the possible exception of orange, should not have a central color scotoma, and should not be markedly weak in any color, or be color ignorant or aphasic. Shortening of the red end of the spectrum should be positively eliminated.

CONCLUSION

Industry looks to the ophthalmologist to examine applicants and employees for color defects in vision without any question as to the quality of method or

knowledge. How many are in a position to fulfil this trust, and what percentage make a sufficiently accurate determination in every case of defective color sense to be able by concerted action to reply in time to the many unanswered problems in this field?

ABSTRACT OF DISCUSSION

DR. J. ELLIS JENNINGS, St. Louis: Tests used to detect color-blind employees must be practical. A circular sent out, Dec. 29, 1925, by the American Railway Association says: "A test for the detection of color defects should be one which can be carried out as rapidly as possible with absolute efficiency. Of two or more equally efficient tests, the one that takes the least time should be selected. The tests for color perception shall be made by the Holmgren worsteds or any standard modification thereof, and also by one of the several lanterns designed for this purpose." The Jennings self-recording test seems best able to meet these specifications: rapidity, efficiency, standardization and self-recording. As many color-blind men judge color by luminosity, the plates of Stilling and especially those of Ishihara are valuable tests. The St. Louis and San Francisco lines use the self-recording test, and the employees are examined every three years. The last examination showed twenty-six color blind out of 5,446 men. Most of these color-blind men began their railroad career by passing the Thomson stick. A phase of the subject calling for consideration has to do with the automobile. Cities and towns are rapidly installing red and green traffic signals at busy street intersections in an effort to prevent collisions. As four persons are color blind per hundred, then there must be 1,600,990 color-blind drivers who might mistake red and green traffic signals. Then there is the driver with very defective vision, or with diplopia, and sees two automobiles where there is only one. This section should advocate a license for every driver with tests for hearing, vision and color perception.

DR. R. H. T. MANN, Texarkana, Ark.: This section might take some steps to see that every man in the railway service is examined and the automobile drivers as well.

DR. ARCHIBALD E. CHACE, Texarkana, Ark.: Dr. Jennings spoke of the report of the American Railway Surgeons Association, and although I do not agree with all that was said in that report, I was one of the committee that drew it up. But bear in mind that the report says a lantern must be used, with the Jennings test or any other test—the lantern must be used to be safe. The length of time taken in examining for color defects should be sufficient to be safe, and if we are to do that we must use the lantern test. In practically all European countries it has been found that 50 per cent of cases of color blindness were not detected by the usual simultaneous comparison tests alone.

Function of the Aorta.—The elasticity of the aortic wall is its main function in health. The organ is a conserver of power no less than of blood, and by its elastic recoil upon the contained mass it completes the systemic work begun by systole and accomplishes the transference to the heart muscle of oxygen and food. As the lesser vessels branch from the main trunk and become a network of finer and still finer twigs, the elastic tissue is replaced by muscle-fibers that sustain the hydraulic load at the desired pressure. There is thus no hard-and-fast line to be drawn between the two functions, elastic and muscular, in respect of their effect upon the diastolic blood supply to the heart; inadequacy of either will provoke changes in both systolic and diastolic pressure. Nor is it possible in the human subject to prove the effects upon the coronary flow of the loss of elastic aortic recoil due to syphilitic aortitis, or of severe atheroma, or of the more diffuse forms of arteriosclerosis. It is hardly likely that the effect in either case is entirely negligible. Arguing upon first principles it would seem that the aortic rigidity would impair and that the peripheral arteriosclerosis, by raising the diastolic tension, might actually increase the cardiac circulation and, therefore, efficiency.—Bourne, Geoffrey: *Lancet*, Sept. 4, 1926.

MENINGEAL HEMORRHAGE IN THE NEW-BORN *

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In the clinic of Professor Zárate of Buenos Aires, we have given particular attention to the study of meningeal hemorrhage in the new-born. Dr. Maldonado Moreno [1] has investigated the causes, effects and mechanism of these ruptures and their consequences: meningeal hemorrhages. But he has not been able to contribute facts of any importance as regards the symptoms, diagnosis and treatment of this hemorrhage, as he has not had the opportunity of observing cases of lengthy survival.

In the last four years, we have had the opportunity of following thirteen cases in which the survival was longer than twenty-four hours, and in six the recovery has been definite without sequelae. To these cases must be added nineteen still-born children or those in which death had occurred before twenty-four hours. In such cases the clinical diagnosis could not be made, and we have only the facts of the necropsy.

Our observations total forty-two cases, in 31 per cent of which survival was longer and in 14 per cent of which the cure was complete. These statistics alone demonstrate the importance of the clinical subject in which we desire to cooperate with this article as a complement of the work of Dr. Maldonado Moreno.[1]

SYMPTOMS

It is customary to subdivide intracranial hemorrhages in the new-born for symptomatic study into epidural or extradural hemorrhage, when it takes place between the bones of the skull and the dura mater: subdural when occurring between the dura and the arachnoids; subarachnoidal when they occur between the arachnoids and the pia mater; intracerebral when appearing in the brain proper, and finally intraventricular when appearing in the ventricular cavity itself.

The most important in the new-born are the subdural, as they are both more frequent and more to be feared; they are also known as intermeningeal. In their causation intervene not only the obstetric operation (forceps, version, etc.) but also any pressure on the head in traversing the pelvis, when there exists a disproportion between the respective diameters. But as meningeal hemorrhage has been observed in spontaneous and easy births and even in the fetus extracted in the cesarean operation, we must admit that there are hemorrhages subject to other causes, such as tetanic contraction of the uterus or abnormal fragility of the brain capillaries, due to infection or toxic diseases, such as syphilis.

The subarachnoidal hemorrhages, which are the ones of greatest interest for us, may be supratentorial or infratentorial, the first produced by lesions of the falx cerebri and the sinus which surrounds it, as also the rupture of the superior fibers of the tentorium cerebelli; they are often unilateral and of the most benign prognosis. They are, however, not the most frequent, as may be seen from the postmortem study of our cases.

The infratentorial, produced by lesions of the tentorium cerebelli affecting the sinus transversus or the

* Read before the Section on Diseases of Children at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Maldonado Moreno: Spontaneous and Traumatic Ruptures of the Dura Mater in the New-Born, thesis, 1914.

veins which follow its free side or which tear its inferior fibers, are the most dangerous, because the flow of blood traumatizes the cerebellum, the medulla oblongata and the spinal cord, vital points of the nervous system, and rapidly causes death by asphyxia. Thus, these infants die shortly after birth, and the diagnosis may be suspected but can only be determined by necropsy. This does not always occur, and when the blood flow is not very great or takes place gradually, it allows of a greater or lesser prolongation of life and even a complete cure, with or without sequelae.

In the cases that we have observed at necropsy, the rupture of the tentorium cerebelli was practically always seen, and even when the lesion might be superior, lumbar puncture allowed the extraction of hemorrhagic liquid, which proves that the mixed cases of supratentorial and infratentorial hemorrhage are frequent.

There are two periods in the symptomatology of these little patients: that of excitement as a result of the increase of internal pressure, and that of paralysis or paresis when the nervous centers have been injured and are subject to exhaustion. The new-born, at first restless, soon becomes apathetic and sleepy; the coloring of the skin is white (asphyxia pallida) or blue (asphyxia livida).

Professor Hutinel gives an important place to asphyxia in the diagnosis of meningeal hemorrhage, an opinion that is endorsed by Ritter von Reuss, who, in discussing the causes of asphyxia in the new-born, maintains that this is due in many cases to cerebral lesions, among which meningeal hemorrhage occupies the first place. Effect being taken for cause, asphyxia is blamed for many cases of stillbirth which really correspond to meningeal hemorrhage. Finkelstein gives as a differential diagnosis of asphyxia due to meningeal hemorrhage dysphagia or the impossibility of swallowing (cases 2 and 12), symptoms which permit of its differentiation from asphyxia due to other causes. Ylppö maintains that in the meningeal hemorrhage a contraction, rapid as lightning, in the extremities is produced by percussing the sternum or any other part of the body.

The increase of intracranial pressure in meningeal hemorrhage, as in hydrocephalus, produces a bulging of the fontanel that is easily felt. This symptom has been very characteristic in case 10. It is frequently absent when the hemorrhage is small or infratentorial.

The irritation of the brain structure by hemorrhage produces convulsions, hemorrhage being the most frequent cause of convulsions in the new-born. These sometimes affect the type of jacksonian epilepsy, commencing in one member or group of muscles, and later becoming general. The importance of this symptom for the localization of the hematoma and its surgical treatment can be readily understood. These localized convulsions are more frequently observed in the muscles dependent on the facial nerve and in the upper limbs. Nevertheless, localization of the hematoma is not always possible, as the compression or edema may produce local phenomena in the opposite side of the brain. Nystagmus, convulsions of the ocular muscles, and trembling are symptoms that may appear. In the thirteen cases observed, we have noted convulsions in three.

When the hemorrhage is situated far away from the motor centers, as is noted by Dr. Maldonado Moreno, convulsions, the same as in parlaysis, are not symptoms frequently observed.

The pain that causes the complaint of the child is attributed by Ritter von Reuss to the rupture of the dura mater, which is a sensitive membrane.

This symptom, continual complaint, is observed with great frequency (in eight of the thirteen cases mentioned). It is possible that the explanation mentioned above is correct, but the fact is, we have observed the same sign in infants with other diseases, such as pneumonia. In any case, we must insist on the symptom, which is of great practical utility, and following the results of our own experience we can establish the following rule: Any new-born child that complains is subject to a grave illness and very frequently a meningeal hemorrhage.

The cortex lesions, produced by the hemorrhage, explain the tendency toward stupor and coma, which may be observed in many of these patients. Ritter von Reuss says, "These troubles in the sphere of conscience prove that the new-born is not a subcortical entity but on the contrary reveals a certain development of the higher or psychic centers."

When the hemorrhage oppresses the spinal cord, opisthotonos, spasms and muscular rigidity with the signs of Kernig and Brudzinsky and the erection of the penis are observed (cases 7 and 12).

The lesions produced in the respiratory system, apart from producing the phenomena of asphyxia which we have studied, and irregular respiration (deep with long pauses), produce a very important pulmonary symptom, atelectasis, to the extent, as Kundrat maintains, that the appearance of atelectasis in the new-born of a robust constitution is almost characteristic of a meningeal hemorrhage.

Among the symptoms that we must mention as the results of lesions of the nucleus vagus are a slow pulse at first and tachycardia later when the nucleus is exhausted. The irritation of the vasomotor centers produces a notable increase of the blood pressure with tense pulse, and pallor and dermographism.

Capillary hemorrhages are easily produced, particularly in the conjunctiva. In two of our patients, this symptom appeared, and we gave it a certain value for diagnosis.

The symptom icterus, described by Dr. Deluca (from Professor Zárate's clinic), in the hemorrhage of the new-born has been observed clearly in cases 2, 4, 5, 7, 9, 10 and 12. It appears between the second and third days. As may be understood, it is not pathognomonic of meningeal hemorrhage, but its appearance facilitates diagnosis when other symptoms are apparent. Deluca says,

> It is a proved fact, fully demonstrated, that fetal hemorrhages during birth are very frequent, having been also observed that icterus of the new-born, appearance on the second or third day after birth, appears also in a large percentage.
>
> I believe, and lumbar puncture or necropsy in such cases prove me right, that the great majority of cases of icterus in the new-born are consequences of such hemorrhage produced during birth. As it is known that biliary pigment is the result of transformation of the blood pigment, the hemoglobin, and as such pigmentary transformation can take place in practically any of the tissues in which the blood may have entered, the necessary consequence of the diffusion of the pigment before its elimination is the appearance of yellowness.
>
> This icterus of the new-born is therefore a sign of hemorrhage which may make its appearance in different parts of the body, as I have proved in many necropsies (skull, thorax, abdomen, etc.).
>
> In support of my thesis I can cite Widal, Abrami, and Brulé, Langhans, Quincke and Poncet, Sabrazés and Muratet, Bar, Milian, Froin, Widal and Joltrain, Casteigne and Weill, Guillain and Laroche, Follet and Ghevrel, and Guillain and Triocier,

all of whom without distinction arrive at the conclusion that the body after a hemorrhage produces autohemagglutinins and autohemolysins, with destruction and transformation of the free blood cells, the presence of which has been chemically established.

Furthermore, the majority of births which produce such hemorrhage are accompanied by circumstances (surgical intervention, asphyxia and congenital syphilis) which merely facilitate the appearance of such autoagglutinins.

My first case goes back to June, 1918. At the date, I can cite about 100 cases in which icterus and hemorrhage have gone hand in hand.

Together with the symptoms described, the obstetric history of the patient is undoubtedly an excellent guide for the diagnosis; the injuries that the infant has experienced at birth, especially surgical, are often sufficient to place the practitioner in the right way, even though asphyxia is the only clinical symptom demonstrable. This happened in our first case, in which the delay in labor of fifty hours and the injuries suffered through the application of forceps, made meningeal hemorrhage presumable, even though no other symptoms than asphyxia and coma were observed. Necropsy confirmed the diagnosis. (The gravity of the case prevented the possibility of lumbar puncture.)

We have purposely placed lumbar puncture last as a means of diagnosis in meningeal hemorrhage, as this small operation is the one that ordinarily confirms the existence of such hemorrhage.

Hutinel[2] maintains that if lumbar puncture were resorted to in the new-born delivered in a state of asphyxia even of short duration, the number of cases of meningeal hemorrhage diagnosed would be considerable. His assertion has been completely proved by us, even in cases in which diagnosis was difficult and the hemorrhage would have passed unnoticed had it not been for the puncture, because of the absence of trauma and the small number of symptoms.

If, as we shall see later, lumbar puncture is a means of treatment in meningeal hemorrhage, its importance in the diagnosis and treatment of this illness is evident. Unfortunately, it is not always possible with the simple operation to obtain spinal fluid; furthermore, this may be clear even in cases of hemorrhage. This happens when the hemorrhage is supratentorial, as we know that hemorrhage, even subarachnoidal, may become localized. In the cases that have come under our observation, with the exception of one, we have withdrawn a bloody, or at least a xanthochromic, fluid.

The existence of cases of meningeal hemorrhage, sometimes considerable and absolutely asymptomatic, force the practitioner to resort to lumbar puncture in all new-born infants that have suffered injuries at birth or in which an abnormal fragility of the capillaries is to be suspected, as a result of infection or intoxication.

Our house physician, Dr. Esquivel, mentions a case in which the infant, delivered by the application of forceps, did not offer during four days any symptoms whatever. On the fourth day, death suddenly supervened, and necropsy revealed an enormous rupture in the tentorium cerebelli.

As these cases diagnosed and treated in time are curable, it is necessary that all new-born infants subject to the foregoing causes (and this will be the principal conclusion of this paper), as an invariable rule, be subjected to lumbar puncture, and the application of this law must be as constant as that of Credé in the prophylaxis of gonorrheal conjunctivitis.

2. Hutinel: Diseases of Infants.

PROGNOSIS

Mönckeberg[3] says, with reference to meningeal hemorrhage, "The possibility of a complete cure is doubtful. There are some who consider this possible. In regard to myself, I have proved this. But unfortunately, this result is exceptional."

Ritter von Reuss makes the same grave prognosis, especially as regards infratentorial hemorrhage, in which he says that life is, as a rule, not prolonged more than from twenty-four to forty-eight hours. In the supratentorial, he considers that a cure is more possible, with or without sequels. This cure is either spontaneous or the result of treatment. In general, according to this authority, the prognosis of meningeal hemorrhage is grave, especially when symptoms develop within the first twenty-four hours.

Naturally, the prognosis varies, with the localization and the intensity of the hemorrhage, so much so that, when it is unimportant or is localized in dumb zones of the brain, it may easily pass undiscovered without this implying that it may not have consequences.

In our cases it calls our attention to the fact that a cure should have been effected in 50 per cent of the children in which survival has allowed diagnosis and corresponding treatment. May not these statistics prove a basis for the modification of the grave prognosis attributed up to the present to meningeal hemorrhage, in our opinion due perhaps to the want of an early diagnosis and the want of an appropriate and intensive treatment? We shall see whether the future will confirm this opinion. In any case, we place it before the obstetric and pediatric practitioners for its study and confirmation.

Let us now see what consequences may be produced by meningeal hemorrhage and its possible appearance. It is admitted that the sequelae that meningeal hemorrhage may produce affect the psychic sphere of idiocy, imbecility and mental debility; furthermore, it may produce motor troubles—spastic diplegia (Little's disease), hemiplegia and epilepsy. It is admitted also that internal hydrocephalus may have its origin in meningeal hemorrhage; its mechanism would be through the occlusion of the communication ducts, which would impede the passage of the spinal fluid together with the alterations produced in the walls of the ventricles.

The destructive lesions which hemorrhage produces in the cortex are the origin of many sequelae, the symptoms varying as to whether the motor or the psychic centers are affected. The lesions determined by necropsy are meningo-encephalitis, sclerosis, cysts and porencephalitis.

Cases 2, 3, 9, 10, 11 and 12 have an evolution of more than one year. In none of these cases have we noticed any sequelae, although we subjected the patients to a methodical and careful observation.

Perhaps the energetic treatment to which they were subjected has prevented the appearance of such sequelae, especially in cases 2 and 10, in which hemorrhage was considerable and in which the patients did not appear to be able to survive their lesions many hours. This, therefore, is another problem that we leave for discussion. The late appearance of sequelae cannot be excluded absolutely.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis must be resorted to in acute hydrocephalus, with meningitis, meningo-encephalitis, with encephalitis, concussion of the brain and intra-

3. Mönckeberg: Obstetric Traumatism in the New-Born.

cerebral hemorrhage, all of which may provoke analogous symptoms.

Lumbar puncture, with the appearance of a uniformly hemorrhagic, or at least a xanthochromic fluid without germs, allows of this differential diagnosis in the majority of cases. The cases of small meningeal hemorrhage or cysts are an exception. When it is the puncture itself that produces the hemorrhage, the fluid is not uniformly hemorrhagic. If centrifugalized, it becomes quite limpid, which does not take place with meningeal hemorrhage, as it remains yellowish (xanthochromic). On examination, the centrifugalized fluid shows in meningeal hemorrhage the red blood cells altered or crystals of hematic pigment.

TREATMENT

Prophylaxis must be decided on by the obstetrician. Dr. Maldonado Moreno has investigated the point thoroughly.

Treatment may be surgical or medical. The first limits itself to cases in which the hemorrhage is localized to cerebral zones accessible to diagnosis, due to focal symptoms which appear. Naturally, we exclude from this study the extradural hematomas; these are tributary to surgical treatment and are ordinarily the result of fracture of the bones of the skull.

In the subdural supra-arachnoidal hemorrhage, the clot may be localized and will allow surgical treatment; this may also be the case in subarachnoidal supratentorial hemorrhage.

The surgical treatments employed are many—from the simple incision of the cranial sutures and the evacuation of the clot (Simon's operation) to trephining and craniotomy, with incision of the dura and evacuation of the clot (Cushing's operation). Even in the cases in which surgical treatment is possible, it is advisable not to operate before the fourth day, first, in order to avoid a useless operation in cases that tend toward a spontaneous cure; secondly, in order not to disqualify the operation in those very grave cases in which, with or without an operation, the patient must invariably die. If on the fourth day there is no sign of improvement and the localization of the hematoma is possible, it is time to consider the possibility of an operation which, even in the hands of experienced surgeons, gives a mortality of 50 per cent and does not always prevent the appearance of sequelae.

Should operation be considered when the lesion is localized in the tentorium cerebelli, as has happened in all our cases, in which necropsy was done and is therefore inaccessible to the surgeon? The answer is not difficult: medical treatment suffices; when properly applied, it gives good results. In this treatment we must diminish the cranial pressure and employ hemostasis; the latter is indicated especially when meningeal hemorrhage appears in combination with other hemorrhage, as in our cases.

Lumbar puncture already necessary for diagnostic purposes fulfils the first and second object, as it allows of hemostatic medication in the focus itself of the hemorrhage by means of intraspinal injections of serum. Puncture must be repeated several times in the course of the day until improvement occurs. We have never observed any inconvenience resulting from this minor operation.

The most active hemostatic medication appears to us to be normal horse serum. The dose is from 10 to 30 cc., by intraspinal injection, after evacuating an equal or greater quantity of cerebrospinal fluid. When other hemorrhages are associated, such as that of the suprarenal capsules or when lumbar puncture is not possible, the serum may be injected intramuscularly or subcutaneously. The injection must be repeated two or three times in the twenty-four hours.

With the hemostatic action of normal horse serum (in the absence of antidiphtheritic serum), we have combined gelatin solution, 10 per cent, in doses of from 10 to 20 cc. by subcutaneous injection, also repeated twice in twenty-four hours. According to Mall, the gelatin increases the amount of fibrinogen, and its employment in hemorrhages in the new-born has diminished mortality by 40 per cent.

Other details of treatment include nourishment by pumped breast milk, and by means of the spoon or gavage, if swallowing is not possible; the use of the incubator to resist hypothermia or of baths against hyperthermia, symptoms which can appear in meningeal hemorrhage in the absence of all infection and which sometimes reach considerable heights of fever (case 12). Convulsions are treated by chloral and bromides, symptomatically.

REPORT OF CASES

Case 1.—This infant entered the incubator, Sept. 23, 1921. The mother, a multipara, appeared at the clinic after fifty hours of labor. The symptoms of suffering in both the mother and the infant made it necessary to apply the forceps, which turned out to be very difficult. The infant was born weighing 3,275 Gm. and apparently dead. The usual steps to restore life were taken, but it was possible only to induce inspiration, without getting the infant to cry aloud. The condition of the child was extremely grave when we examined it, a few hours before death supervened; it was pale, with long periods of apnea interrupted at intervals by loud inspirations. The fontanel was depressed; it was difficult to hear the cardiac sounds.

In view of the grave state of the patient, we dared not submit to lumbar puncture, but it was possible from the antecedents to diagnose a rupture of the tentorium cerebelli, the most frequent of obstetric injuries, excluding the rupture of the tentorium cerebri due to the want of bulging of the fontanel. Necropsy confirmed our diagnosis. A large rupture of the tentorium cerebelli was apparent on the left side and another of smaller proportions on the right side, with abundant meningeal hemorrhage. In other organs only lesions due to asphyxia were discovered.

Case 2.—Aug. 2, 1923, the mother, a primipara, without previous miscarriages, appeared at the clinic with albuminuria and eclampsia; the presentation was cephalic. An oblique application of forceps was made. The child was born in a state of asphyxia, an injury in the region of the right ear produced by the forceps being apparent, with slight hematoma and paralysis of the facial nerve of the same side; the cranium was deformed and the fontanel depressed. The infant complained continually.

Auscultation of the lungs showed râles on both sides; respiration was irregular, with periods of apnea; the pulse was 110, and the temperature, 35.5 C. (95.9 F.). The child could not suck, and swallowed with difficulty. It was unconscious, with exaggerated reflexes. August 5, hypothermia continued; a conjunctival hemorrhage appeared on the right side.

It was possible to get the infant to take 20 Gm. of breast milk, artificially obtained, every two hours, but this small quantity was usually vomited. Icterus in a pronounced state made its appearance. The periods of apnea continued and auscultation revealed the fact that there was a want of ingress of air on both sides; râles were apparent in the inspirations. The weight decreased from 3,300 to 2,900 Gm., when lumbar puncture was resorted to, which liberated a sanguineous liquid. Analysis revealed deformed red blood cells.

August 11, the weight had diminished to 2,300 Gm.; the taking of nourishment continued to be difficult. In the subsequent days of August, the state of nourishment improved somewhat; the weight increased to 2,500 Gm., and the infant commenced to suck.

September 3, the patient cried loudly. The weight increased to 2,650 Gm.; the right facial nerve continued paralyzed; the temperature became normal.

October 3, the state of the infant was satisfactory; the weight was 3,300 Gm. The child could now suck at its mother's breast, and as the facial paralysis had disappeared, the patient was discharged.

In this case, the diagnosis of meningeal hemorrhage is evident in view of the injuries sustained, by the symptoms and by the result of the lumbar puncture. The gravity of the case was such that we were certain of prompt dissolution, which, however, was not confirmed, a fact which demonstrates that even in these cases a cure may be expected and that it is necessary to be prudent in diagnosis.

CASE 3.—In May, 1923, a primipara was delivered at term of an infant, with the application of forceps necessitated by prolonged labor due to uterine inertia. The fetus seemed to suffer. May 8, the child complained continually. There were facial paralysis and a hematoma of the left side. There was nothing abnormal observable in the thorax and in the abdomen. Lumbar puncture liberated 3 or 4 cc. of spinal fluid of a sanguineous color. Analysis showed deformed red blood cells without germs. Intraspinal treatment was resorted to with horse serum. May 9, the child slept and sucked normally; it no longer complained. The treatment with serum was continued. The child was observed for several days and, its state being good, it was dismissed.

CASE 4.—July 15, 1923, a mother, who had had a miscarriage previously, was admitted in the eighth month of pregnancy. The presentation was pelvic, with Moriseau's maneuver.

July 16, the child was hypothermic; the skin was icteroid. Certain râles were noticeable in both lungs. The liver and spleen were large. The child died twenty-nine hours after birth. Necropsy showed double rupture of the tentorium cerebelli and abundant meningeal hemorrhage. Large coagulations covered the convolutions of the brain. Pneumonia alba was present in the right lung. The liver and spleen were increased in size.

CASE 5.—Aug. 27, 1923, we saw a mother who had formerly been pregnant with twins during eight months. One of the fetuses was still-born and the other died shortly afterward. The present infant was delivered at term and the birth natural. The child was examined the next day, August 28, the nurse informing us that the baby had complained all night. A hematoma was apparent in the right parietal region. Lumbar puncture allowed the escape of a small quantity of sanguineous fluid.

August 29, the temperature was 38 C. (100.4 F.), and respiration 58 per minute. Jaundice was apparent. The child died after three days. Necropsy showed a meningeal hemorrhage due to the rupture of the tentorium cerebelli.

CASE 6.—In November, 1923, we saw a primiparous mother who had had one miscarriage previously. The present delivery was at term. Delivery was accomplished with the application of forceps. The child had convulsions, nystagmus, opisthotonos and was unconscious. Lumbar puncture yielded 6 cc. of spinal fluid tinged with blood.

November 28, the temperature was 40.3 C. (104.5 F.); respiration, 96. The opisthotonos continued, with rigidity of the lower extremities. Splenomegalia was present.

November 29, the temperature was 41 C. (105.8 F.). The child groaned continually. There were convulsions of the lower extremities. The opisthotonos had disappeared. The liver was enlarged and it was possible to feel both kidneys. Lumbar puncture yielded 5 cc. of hemorrhagic spinal fluid.

November 30, the temperature was 38.5 C. (101.3 F.); respiration, 62, and pulse, 150. Medium râles were noticeable in both lungs. Dysphagia was present, and both the spleen and the kidneys could still be felt.

The child died after six days. Necropsy showed a double rupture of the tentorium cerebelli, with meningeal hemorrhage and hemorrhage of the suprarenal capsule.

CASE 7.—From a primiparous mother after a normal pregnancy an infant was delivered with the application of forceps. The temperature of the anus was 37.4 C. (99.3 F.); the pulse, 105, and respiration, 70. The child groaned constantly. Auscultation of the lungs showed râles. The child died thirty-nine hours after birth.

Necropsy revealed a double rupture of the tentorium cerebelli with meningeal hemorrhage; the lungs were atelectatic; there was a suprarenal hematoma of the right side.

CASE 8.—A baby was delivered, April 15, 1924, with the application of forceps. The mother had had a previous miscarriage of five months. This pregnancy was normal. The child had jaundice and hypertrichosis. There were ecchymotic stains on the face, the left side and on the illeocecal spine. The child was groaning and refused the breast. The temperature was 37.4 C. (99.3 F.); respiration, 40, and pulse, 135. Enlargement of the spleen was noticed.

April 16, the temperature was 38.6 C. (101.5 F.). The patient exhibited the same symptoms as the day before. Lumbar puncture yielded sanguineous fluid.

April 17, the temperature was 36.4 C. (97.5 F.). The heart sounds were very feeble. The child groaned constantly; convulsions made their appearance. The patient died after five days. Necropsy disclosed jaundice, with a diffused hematoma of the scalp. There was a rupture of the right side of the tentorium cerebelli.

CASE 9.—A primipara, after a normal pregnancy, was delivered, with lateral episiotomy and the application of forceps. When we saw the infant, the temperature was 37 C. (98.6 F.). It groaned, slept little, and awakened at the least sound. There were bulging of the fontanel and obstetric facial paralysis of the left side. Lumbar puncture yielded 6 or 7 cc. of a sanguineous liquid.

June 25, the temperature was 26.7 C. (80 F.); the child rested and slept well. It neither cried nor groaned.

June 28, the infant passed the day well. The following days, the general state of the patient was good and he was dismissed, June 14, completely cured.

CASE 10.—Feb. 26, 1924, at 1 p. m., an infant was delivered, with the application of forceps, after a labor lasting five hours. The mother was a primipara and had had no miscarriages. The pregnancy lasted eight months. From the beginning, symptoms of suffering had been noticeable in the fetus. Windings of the cord were observed. The child was pale, with apnea; it hardly cried, notwithstanding the steps taken for this purpose. It remained in this state ten hours, at the end of which convulsions appeared. We examined the patient at 10 p. m.; besides the convulsions, our attention was drawn to the somnolence, pallor and groaning. Besides these symptoms, we observed a hematoma in the occipitoparietal region on the right side; conjunctival eccymosis; bulged fontanel; dyspnea, and the heart sounds well pronounced. Both kidneys could be felt. The anal temperature was 36 C. (96.8 F.). Lumbar puncture having been resorted to, a sanguineous fluid, almost like pure blood, was obtained; 10 cc. of normal horse serum was injected. Enemas of chloral and baths were prescribed.

February 28, jaundice made its appearance. The other symptoms continued without change. The temperature was 38.6 C. (101.5 F.). A second lumbar puncture was made, a liquid uniformly tinged with blood being withdrawn. An equal quantity of serum was injected intraspinally and 10 cc. subcutaneously. The same day, 20 cc. of gelatinous serum was injected, and the child was ordered to be fed with pumped breast milk. It swallowed with difficulty and vomited.

February 29, a slight improvement was observed. The child commenced to cry and swallowed easily. The vomiting had disappeared. The temperature was 38.5 C. (101.3 F.). The convulsions had disappeared. Lumbar puncture was again resorted to, with the same result as on previous days. The same therapeutics were resorted to inclusive of the gelatinous serum. The child's feeding continued with pumped breast milk. The temperature was 38 C. (100.4 F.).

March 1, the temperature was 37.4 C. The general state of the patient continued to improve; the pallor of the skin had changed to a pinkish yellow. The fontanel was depressed. The child ate well and did not vomit. Injections of gelatinous serum were continued subcutaneously.

The Wassermann spinal fluid reaction gave a negative result. This and the negative history eliminated syphilis. On the following days, the improvement continued. The child could now nurse. A hematoma of the external sternocleidomastoid muscle made its appearance.

April 1, one month and four days after birth, the condition was satisfactory, the hemorrhage having left no sequelae. The kidneys could no longer be felt. The weight had increased from 2,700 Gm. to 3,200 Gm. The child cried loudly, and suction was normal. We saw the patient for the last time at 7 months, and the cure was complete without any sequelae.

CASE 11.—The mother had had eight pregnancies. Five deliveries were spontaneous; two were with the application of forceps and there was one miscarriage. The present pregnancy was normal and on time, Nov. 9, 1924, with transverse presentation. There was internal version followed by extraction with grave obstetric injuries. The child was born asphyxiated. We examined the infant the next day. The nurse advised us that convulsions had supervened during the night. The child was cyanotic. Temperature by rectum was 36 C. (96.8 F.). Opisthotonos, bulging of the fontanel and dysphagia were present. The reflexes were exaggerated. The pulse was 150. Both kidneys could be felt. Lumbar puncture yielded 5 cc. of rosy liquid. Analysis showed that there were destroyed red blood cells in it. Five cubic centimeters of normal horse serum was given by intraspinal injection, and 20 cc. of gelatinous serum subcutaneously.

November 21, the child commenced to swallow his milk. Icterus supervened. The same intraspinal and subcutaneous treatment was continued.

November 22, there were opisthotonos and rigidity of the members. The Kernig and Brudzinski signs were positive. The same treatment as on previous days was resorted to.

November 24, the child continued well and took its food; the rigidity appeared only during periods of excitement. The weight increased from 3,400 to 3,800 Gm. On the following days recovery became definite and without sequelae.

CASE 12.—Though the pregnancy and birth were normal, the infant, when delivered, Nov. 29, 1924, was too large, 62 cm. instead of 52 cm. long, and weighing 5 Kg.; the circumference of the skull was 37.5 cm.

December 1, the child showed icterus; it groaned; there were brachial paralysis and a hematoma in the occipital region. Both kidneys could be felt. The temperature was 38 C. (100.4 F.). Suspecting a meningeal hemorrhage, we resorted to lumbar puncture. Ten cubic centimeters of xanthochromic liquid was liberated, with deformed red blood cells. Ten cubic centimeters of serum was applied intraspinally and 10 subcutaneously.

December 3, the temperature was 39.5 C. (103.1 F). Icterus was present, as were the same symptoms as the day before. The same treatment was applied.

December 4, the temperature was 39.5 C. (103.1 F.). The same treatment as before was given.

December 6, the temperature was normal. The icterus tended to disappear. Lumbar puncture was not done, and we limited ourselves to the application of the serum subcutaneously. On the following days, the child was under observation and was later discharged completely cured.

CONCLUSIONS

1. Even in the most desperate cases of meningeal hemorrhage, a cure is possible in a greater percentage than has been believed up to the present, provided an early diagnosis is made, followed by energetic treatment.

2. One must consider in the diagnosis, besides the obstetric history, the following clinical symptoms: asphyxia, accompanied by dysphagia, bulging of the fontanel, convulsions, continuous moaning, stupor or coma, opisthotonos, spasm and icterus.

3. As these symptoms are not pathognomonic and may be absent, lumbar puncture is necessary for the diagnosis; and as this little operation is an indispensable means of treatment of this grave disease of the newborn, we considered ourselves authorized to formulate the following law, which must be considered by all practitioners conscientious in their duty, as is the case in the prophylaxis of gonorrheal conjunctivitis:

All new-born infants that may have experienced an obstetric injury or in whose history an infectious or toxic process shall have been observed, capable of producing vascular fragility, must be subjected to lumbar puncture immediately after birth, and if this puncture shows the existence of meningeal hemorrhage the child should be put under the corresponding treatment.

4. In the majority of cases of meningeal hemorrhage the treatment is exclusvely medical and consists in the decompressive effect of lumbar puncture and the hemostatic action of normal horse serum, by intraspinal injection. The gelatinous serum by subcutaneous injection must also be employed.

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SHORTENING THE QUARANTINE PERIOD FOR DIPHTHERIA CONVALESCENTS AND CARRIERS *

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Diphtheria is still one of the most vexing and annoying problems the health officer must contend with, largely because of the diphtheria carrier. A certain percentage of carriers remain positive, harboring diphtheria bacilli for a lengthy period in spite of, or sometimes because of, all measures known to science employed singly or collectively to clear them up.

Different cities have various rulings arbitrarily decided on as to when patients suffering with an acute attack of diphtheria shall be called carriers. These vary from twelve days to several weeks. It is customary at this time to make the quarantine a little less difficult, allowing the adults to come and go from the house, provided they do not handle foods or contact children and the patient is properly isolated.

Aside from the economic loss and problem, the life of the conscientious health officer is made miserable and the physician in charge of the case is at his wits' end as to what to do next to attempt to rid his patient of diphtheria bacilli. Hitherto in the treatment of carriers we have had recourse to two methods, antiseptics and tonsillectomies. At the isolation hospital we have turned hopefully from one throat and nose application to another—hot irrigations of salt and soda solutions, fullers' earth, silver nitrate, mild silver protein, mercurochrome-220 soluble, gentian violet, sulphonated bitumen, N. F.; the psychologic effect on the patient is a big factor in stimulating our diligence. The antiseptic used does not seem to figure particularly, as long as it is sufficiently mild and nonirritating. Strong, irritating solutions only improve the culture medium for the bacilli and lengthen the period the patient remains positive.

Tonsillectomy has been the method of choice and the one capable of a good percentage of cures, but it is not always possible to get the consent of the parent, especially when one cannot guarantee that the patient will be cured. It may be contraindicated for other reasons, and many times the site of infection is not in the tonsil but in the nasal and postnasal region.

The roentgen ray offers a third avenue of escape and from the work by other roentgenologists, as well as the series of fifty-four under discussion, promises to be

* Read before the Section on Radiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

TABLE 1.—*Diphtheria Carriers Treated by Roentgen Rays*

Case Number	Age	A-T 1,000 Units	Complications	Tonsillectomy Before Roentgen-Ray Treatment	M. A. M. Roentgen Ray	Number of Days from First Positive Culture to First Roentgen-Ray Exposure	Number of Days from First Roentgen-Ray Exposure to First of Three Negative Cultures	Comment
1	10	5	.....	Yes	200	65	7	
2	9	5	.....	Yes	300	65	21	
3	12	5	Syphilitic "saddle nose"	Yes	700	80	50—	
4	15	5	.....	Yes	400	48	12	
5	6	5	.....	....	40	40	15	
6	58	?	.....	....	100	90	11	
7	4	5	.....	....	400	38	6	
8	7	5	Not virulent.....	Yes	500	70	72—	
9	3	40	.....	....	400	37	13	
10	7	?	Not virulent; released Nov. 25, 1925	Yes	400	225	85—	Mother +; refuses treatment; still + 9/25
11	11	?	.....	Yes	400	235	62—	
12	17	15	Hypertrophic rhinitis...	Yes	600	81	28—	
13	8	?	.....	....	300	56	9	
14	9	?	Abscess left nostril, antrum	....	400	42	64—	
15	3½	5	Bilateral otitis media...	Yes	400	45	80—	Not virulent; released Nov. 25; ears still positive 9/25
16	25	5	.....	....	300	2	6—	
17	28	5	.....	....	300	3	17—	
18	21	5	.....	....	300	8	4—	
19	12	?	.....	Yes	500	179	65—	Father and mother refuse treatment; children + 9/25
20	14	?	.....	Yes	500	67	65—	
21	22	?	Pregnancy.....	....	150	68	7	
22	18	5	.....	....	400	30	17	
23	12	5	.....	....	250	28	8	Again + 12/25 to 1/20
24	6	5	.....	....	150, 200	7	21*	
25	17	6	.....	....	150, 75	11	37*	
26	9	5	.....	....	150, 150, 150	6	19*	
27	10	5	.....	....	150	6	7*	
28	9	5	Hypertrophic rhinitis...	Yes	550	180	?—	
29	51	?	.....	....	300	52	8	
30	8	5	.....	Yes	400	73	65—	Still positive 4/15/26
31	11	5	Chronic sinus infection	Yes	400	20	65—	
32	12	20	.....	....	400	60	33	

Cases having incomplete histories or complicating pathology are indicated by —. Cases in which other experiments were done are indicated by *.
Of forty-two "carriers," thirty-nine, or 85 per cent, became negative.
The average positive culture period of twenty-three uncomplicated carriers, before the first roentgen-ray treatment, was 60.9 days.
The average positive culture period, after the first roentgen-ray treatment, before "release negative culture," was 10.9 days.

TABLE 2.—*Diphtheria Convalescents Treated by Roentgen Rays*

Case Number	Age	Duration, Days	A-T 1,000 Units	Complications	Tonsillectomy		M. A. M. Roentgen Ray	Number of Days from First Positive Culture to First Roentgen-Ray Exposure	Number of Days from First Roentgen-Ray Exposure to First of Three Negative Cultures	Comment
					Before Roentgen Ray	After Roentgen Ray				
33	12	7	?	.....	Yes	....	400	48	10	
34	7	6	10	.....	....	....	400	40	15	
35	7	10	20	.....	....	....	400	44	8	
36	8	10	?	.....	Yes	....	100	105	4	
37	16	7	5	Nasal polyp; sinus infection	Yes	....	400	42	92—	
38	31	10	30	.....	....	....	400	20	5	
39	3	10	?	.....	....	....	100	42	5	
40	17	10	20	.....	....	Yes	150	37	9	
41	8	10	10	.....	....	Yes	100	29	8	
42	2	12	20	Pulmonary tuberculosis	....	....	100	31	15—	Reaction; no culture for 15 days; then negative
43	4	10	10	.....	....	....	200	315	5	
44	3	14	10	Pulmonary tuberculosis	....	....	300	18	38—	Reaction
45	15	12	20	.....	Yes	....	100	19	6	
46	12	13	15	.....	Yes	....	350	18	20	
47	23	12	20	.....	....	....	300	18	16	
48	19	12	10	.....	....	....	300	20	10	
49	31	10	20	.....	....	....	400	32	14	
50	11	10	20	.....	....	....	150, 150, 200	12	47*	
51	14	10	20	.....	....	....	150, 150	19	10	
52	5	10	20	.....	....	....	150, 150, 100	14	10	
53	7	10	20	.....	....	....	150, 150	17	15	
54	16	7	10	.....	....	....	100, 100, 100, 100	3	4*	
Average	12.2	10.1	16.3	.....	7 Yes	15 No	293	43.3	15.8	

After eliminating those cases with complicating pathologic conditions, indicated by —, and experimental cases, indicated by *, there remain seventeen cases that showed diphtheria clinically and were positive for an average of 49.7 days. All of these became negative in an average of 9.5 days after the first roentgen-ray treatment.
All of these 22 clinical cases treated became negative (ten of them may be called carriers) in an average of 15.8 days, regardless of the complicating pathologic condition.

most efficacious. It is painless, requires no anesthetic, and reduces lymphoid tissue of the pharynx difficult to eliminate by any other method, penetrating to all recesses of the postnasal passages, with no danger to the patient. It cannot be expected, however, that the roentgen ray will clear up foci of infection other than those of the lymphoid tissue of the pharynx.

It is extremely difficult, in fact impossible, to run controls in a work of this character, because of the peculiar indeterminate factors involved. If there were any way of determining exactly when the patient picked up the Klebs-Löffler bacillus, it would be simple to present true statistics as to the length of time isolation was shortened by one treatment or another. But in a case found to be positive by accident in routine or contact cultures, the patient may have a history of having had diphtheria two or more years before, and whether he harbored the virulent bacillus all that time is questionable. Other cases are traced back to nothing more acute than any one of a number of colds. The date at which the patient was placed in isolation gives no evidence whatever of the length of time that the patient was harboring virulent bacilli. This makes it fairer to start calculating the shortening of the isolation period after some definite form of treatment is begun. For statistical purposes, we have had to eliminate all of those who may be real carriers but who have not been positive more than four weeks, and as these case histories were incomplete we have indicated such histories in the tables by a broad black dash.

On the whole, the use of radiation methods to cause a retrogression of pharyngeal lymphoid tissue has been more or less satisfactory, depending, apparently altogether, on the selection of cases and the technic of treatment. It occurred to us that a good clinical test of the efficiency of the radiation treatment of tonsils could be made by subjecting diphtheria carriers to such treatment. If such patients were cleared of their infection, the method might be recommended. If the tonsils continued to harbor diphtheria bacilli, in the absence of other pathologic conditions, the radiation method of treating hypertrophied tonsils could not be recommended even though lymphoid tissue did disappear from the pharynx and nasopharynx.

The treatment of diphtheria carriers by roentgen rays was first mentioned by Witherbee[1] in 1921 and later by Witherbee and Remer[2] in 1922.

Hickey,[3] professor of roentgenology at the University of Michigan Medical School, and Meader, director of the medical department of Detroit, reported thirty-four diphtheria carriers treated with roentgen rays in 1922. Of the nineteen "throat positive" cases, fifteen, or 79 per cent, were reported "cured." In September, 1922, Kahn[4] of Toledo reported 185 cases with a total of 79 per cent "released on negatives cultures." Kahn reported an additional series of twenty-six cases with about the same results in February, 1924. Neither Hickey nor Kahn stated how long these patients were under observation or the length of time they remained positive after the first roentgen-ray treatment.

1. Witherbee, W. D.: X-Ray Treatment of Tonsils and Adenoids, Am. J. Roentgenol. **8**: 25 (Jan.) 1921.
2. Witherbee, W. D., and Remer, John: X-Ray Dosage in Treatment and Radiography, New York, Macmillan Company, 1922, p. 23.
3. Hickey, P. M.: Treatment of Diphtheria Carriers by Means of the Roentgen Ray, Am. J. Roentgenol. **9**: 319-322 (May) 1922.
4. Kahn, Dalton: Treatment of Diphtheria Carriers with the Roentgen Ray, Am. J. Electroth. & Radiol. **40**: 287-288 (Sept.) 1922; The Treatment of Diphtheria Carriers by Roentgen Radiation, Am. J. Roentgenol. **12**: 343-347 (Oct.) 1924.

The method owes its feasibility to the fact that pharyngeal lymphoid tissue is radiosensitive.

The present report is based on fifty-four cases treated within the last year, with very well filtered roentgen rays generated at an actual voltage of 200,000 corrected to a sea level reading. The amount of radiation so given is stated in milliampere minutes in the accompanying tables. All radiation was given at 50 cm. target skin distance and filtered through 0.75 mm. of copper and 1 mm. of aluminum. In no case was more than 60 per cent of an erythema skin dose given; this is just sufficient to cause some dryness of the mouth, due to the effect on the parotid, and in some cases a very slight cervical lymphadenitis.

In this series, following treatment we have had two febrile reactions, simulating an acute tonsillitis, and these might easily have been coincidences. Neither of these lasted more than one week, and each occurred in patients having pulmonary tuberculosis. Observations on all patients treated by us are given in the accompanying tables. We had every reason to believe that many of them were unsuited for roentgen-ray treatment on account of having an additional pathologic condition in the nose or throat, which we knew was not amenable to roentgen-ray irradiation alone. These cases are not considered statistically and are indicated by a broad black dash.

As a rule, the treatments were given at the rate of from 50 to 100 milliampere minutes to each side of the head, weekly. We have, however, tried larger doses, and in one case we gave 150 milliampere minutes to each side the same day. This produced a negative culture in four days.

In regard to the six cases eliminated on account of experimental work, we gave 50 milliampere minutes to each side of the head with from three weeks to one month interval between treatments. One of these cases became negative in four days after one such treatment; we are inclined to believe this to be a coincidence and have eliminated the case from the statistical study.

Of the twenty-two cases of clinical diphtheria, there were three in which there was a complicating pathologic condition which we felt sure would not be favorably influenced by roentgen-ray treatment. Also there were five patients to whom we gave very small doses of roentgen ray at long intervals and who, for this reason, would probably be slow to respond to the irradiation. Of these twenty-two patients, ten of whom were carriers, all became negative in an average time of 15.8 days after having been positive an average of 43.3 days.

If the experimental cases and those patients having foci of infection other than the pharyngeal lymphoid tissue are eliminated, there are left seventeen patients who were positive an average of 49.7 days who became negative and remained negative in an average of 9.5 days after the first roentgen-ray treatment was given. In the carriers, of which there were forty-two, all but three became negative during the three months observation period. This is a percentage of 85. If those carriers who had experimental small doses of roentgen ray are eliminated and those with a complicating pathologic condition also are disregarded, there are left twenty-three carriers with an average positive culture period of 60.9 days who became negative in an average of 10.9 days after the first roentgen-ray treatment.

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ABSTRACT OF DISCUSSION

DR. M. P. HICKEY, Ann Arbor, Mich.: The author did not refer to the discussion that took place in Washington in 1922, when I presented a paper on this subject, when Dr. Ledoux-le-Bard of France was present. In the discussion, Dr. Ledoux-le-Bard stated that during the war he had treated six cases of diphtheria carriers by means of the roentgen ray with very gratifying success, so that to Dr. Ledoux-le-Bard belongs the credit for beginning this line of treatment.

I was greatly interested in 1923 to learn that a series of cases were treated by ultraviolet irradiation with almost as good results as were obtained with roentgen-ray treatment. If it is true that ultraviolet irradiation is followed by beneficial results in these cases of diphtheria carriers, it follows that the use of such high voltage radiation as the author has spoken of in his paper would certainly not be necessary. I would add a word of warning against the use of high radiation around the structures of the throat, and urge that this be done in a cautious manner. A dry throat following irradiation will bother the patient for a long time, and it is resistant to any form of treatment. In the treatment of tonsil conditions, we had a similar experience to the one the author mentioned, producing apparently an acute tonsillitis. In one case only a quarter of the usual dose was followed by a very severe attack of tonsillitis.

DR. SANFORD M. WITHERS, Denver: I want to thank Dr. Hickey for calling my attention to the ill advised treatment of diphtheria carriers. I did not see it and did not find it in the literature that I had. In regard to the use of the ultraviolet ray for diphtheria carriers and convalescents, practically all of the patients we have treated had had ultraviolet ray applications. Virtually all of them have had at least one tonsillectomy, some two and three tonsillectomies, before they came for roentgen-ray treatment. In regard to the dry throat, I do not wish to be misunderstood. The patient that has the highest irradiation in the series was given only 60 per cent of the erythema skin dose through 0.75 mm. of copper at 200 kilovolts. I know that all have given three times that much irradiation for carcinomas about the jaws through the same areas, and are not aware of any intractable dry throat. There has certainly been no trouble from dry throats in these diphtheria carriers. The cases on an average required something over 30 per cent of an erythema skin dose applied to the skin for the irradiation as I have described it. If a section is drawn through the pharynx and the depth dose of irradiation plotted according to Witherbee's technic for the tonsils, it will be seen that more irradiation can be given to the tonsil and less to the parotid with the use of 200 kilovolts than at the lower voltages. I think our health department is well convinced that this is a reliable method after having tried everything else. This method has definitely proved efficacious in our hands, and I do not hesitate to recommend it to any who want to try it.

Research by Medical Students.—Research is a very wide open field and the untrained mind will become trained in doing investigative work. That research requires years of preliminary study, elaborate laboratories and expensive equipment, are false and unworthy dicta. On the contrary, we find numerous examples of epochal research performed by men to whom even the term research was unknown; to whom laboratories and costly apparatus were things unthought of. Witness the simple experiments of Jenner, which have probably been the most fruitful ever carried through to a successful termination in terms of lives saved. Perhaps if we were to evaluate research in this manner, we might put first Lister's clinical application of Pasteur's laboratory discoveries. But it would not matter which, as both experiments were conceived and given birth to by minds which were inquiring, creative, deductive and enthusiastic. Mackenzie, who might well be spoken of as the father of modern cardiology, engaged in clinical research alone. In reality, every case in general practice is a research problem, and the alleviation of the patient's condition requires often extensive study to determine its cause.—Musser, J. H.: *South. M. J.* **19**:706 (Sept.) 1926.

UNDULANT FEVER FROM BRUCELLA ABORTUS

REPORT OF TWO CASES *

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Recently, there have been scattered reports of infection in man with *Brucella abortus*. Evans [1] and Keefer [2] in America and Orpen [3] of South Africa have described such cases; and as the course of the disease is quite similar to, if not identical with, Malta fever, which is caused by *Brucella melitensis*, we feel that the cases reported here should be presented, in hope that some light may be thrown on the frequency with which *Brucella abortus* may be incriminated as a disease-producing agent in man. Bovine infectious abortion, which is due to this organism, is a widespread disease that causes enormous losses to the cattle industry. This organism not only is responsible for the premature expulsion of the fetus by producing an inflammation of the placental tissue, but also localizes in the udders of cattle in many cases, from which it is discharged with the milk. Because of this characteristic, it becomes a potential factor in the further spread of the disease.

Observations were made on two cases occurring in Ithaca, N. Y., in the spring and fall of 1925. Both cases occurred in university students. Patient 1 was a student specializing in poultry husbandry, while patient 2 was an instructor in economics doing graduate work.

REPORT OF CASES

CASE 1.—A student in the university, aged 26, with an essentially negative past history, had always enjoyed excellent health until the present illness. January 25, he complained of feeling very weak and unusually tired. January 26, 27 and 28, he attended classes but said that he did not sleep nights and that early each morning he had profuse sweats. February 1, he consulted a physician, who advised complete rest for a few days. The condition remained about the same, except that he complained of severe headaches and a marked anorexia. February 2, he was admitted to the university infirmary. Examination revealed: pulse, 100; respiration, 22 per minute; temperature, 105 F. Examination of the head and neck revealed nothing. The tonsils were not enlarged; the lymph glands were normal. There was a continual cough, and the patient expectorated a purulent exudate frequently, showing evidence of a bronchitis. There was pain in the left anterior part of the chest. The patient was suffering from a diarrhea; the stools were thin, watery and light yellow. The abdomen was soft. The spleen was enlarged and easily palpable.

Results of the blood examination are shown in table 1. The blood cultures showed the growth of colonies of *Brucella abortus* the sixth day after incubation. The urine showed a marked trace of albumin; 2 grains (0.1 Gm.) of sugar per hundred cubic centimeters, and many oxalates and a few casts. Culture of the urine revealed *Brucella abortus*. The sputum was normal. The Widal reaction was negative. Roentgenograms of the chest revealed a general increase in the density over the right upper lobe, with some mottling. In the left lung there was a marked increase in the peribronchial infiltra-

* Aided by a grant from the Heckscher Fund for Research.

1. Evans, Alice C.: Studies on Brucella Melitensis, Bull. 143, Hyg. Lab., U. S. P. H. S., 1925.
2. Keefer, C. S.: Report of a Case of Malta Fever Originating in Baltimore, Maryland, Johns Hopkins Hosp. Bull. **35**:6 (Jan.) 1924.
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tion, extending through the entire upper lobe from hilum to periphery. No definite parenchymatous change was noted.

The same symptoms continued for four weeks, except that the temperature did not reach such a high level in the evening, and during the night returned more nearly to normal, as shown in the accompanying chart. There was gradual emaciation, anemia, profuse night sweating and inability to sleep. A continual cough persisted. The patient developed a ravenous appetite and during the fifth week began to complain of pains in the stomach as well as just below the sternum. There were pains in the back, and he felt unusually tired. A large number of abscesses developed on the back, from which *Staphylococcus aureus* was isolated. The temperature gradually increased to 105.4 F., and did not recede as it had been doing. March 8, the patient vomited a large amount of undigested food. He stated later that he had been overeating, because of great appetite. He did not wish to leave any food on the tray, because he was afraid he would not be brought so much the next time. After this attack of acute indigestion and a recovery from the infection on his back during the sixth week, the

Table 1.—*Results of Blood Examinations in Case 1*

Date	Red Blood Cells	Hemoglobin, per Cent	White Blood Cells	Polymorphonuclears, per Cent	Lymphocytes, per Cent	Mononuclears, per Cent
2/18/25	3,536,000	60	2,400	45	54	1
3/ 7/25	2,872,000	..	2,400	22	76	2
3/13/25	3,488,000	60	6,400	50	48.5	1
3/20/25	3,752,000	..	7,200	51	47	1
3/27/25	3,840,000	..	6,800	43	55	2
4/ 4/25	4,632,000	..	8,400	40	59	1
5/ 1/25	5,344,000	80	6,000	35	58	7.5

temperature gradually returned to normal. Blood cultures continued to show the presence of *Brucella abortus* (table 2).

The highest agglutinin titer that the blood serum of the patient showed when it was set with *Brucella abortus* antigen was a slight agglutination in a serum dilution of 1:960. Agglutination was complete in a dilution of 1:480. As the

Table 2.—*Results of Cultures and Animal Inoculations on Samples of Blood and Urine in Case 1*

Dates Samples Were Collected	Blood		Urine	
	Cultures	Guinea-Pigs	Cultures	Guinea-Pigs
2/12/25	Positive	Positive	.....	.....
2/20/25	Positive	Positive	.....	.....
2/21/25	.....	.....	Positive	Positive
3/ 6/25	Positive	Positive	Positive	Positive
3/13/25	Positive	Negative	Positive	Negative
3/20/25*	Positive	Negative	Negative	Negative
3/23/25	Positive	Negative	Negative	Negative
3/27/25	Positive	Negative	Negative	Negative
4/ 3/25	Negative	Negative	Negative	Negative
4/10/25	Negative	Negative	Negative	Negative

* Intravenous injection of 23 cc. of 1 per cent solution of mercurochrome-220 soluble.

patient returned to normal, the titer of the blood serum gradually became lower. May 1, the titer of the serum had dropped to slight agglutination in a dilution of 1:480, but complete at 1:240 (table 3).

Treatment was symptomatic throughout the course of the disease. March 20, during the seventh week, the patient was given, intravenously, 23 cc. of a 1 per cent solution of mercurochrome-220 soluble. This injection raised the temperature to 104.6 F. It receded the next day and gradually returned to normal over a period of four weeks, as shown in the accompanying chart. The patient has had no recurrent attacks of this infection since his recuperation, and apparently has made a complete recovery.

Case 2.—A graduate student in the university, aged 36, married, with a negative previous history, spent his summer vacation on a dairy farm. He left the farm, Sept. 25, 1925, and on November 1 noticed that he felt weak, tired and lame; November 8, he observed swellings on the ankles, legs and knees. He suffered from pains in his legs, and thought he had rheumatism. He sought medical aid, and a diagnosis of rheumatism was made. Salicylates were prescibed and taken for two weeks, but gave no relief. Because of the unimproved condition, further medical attention was necessary.

When he came under our observation, November 24, the temperature was 100.2 F. The patient stated that he had been having chills and periods of sweating, these symptoms

Table 3.—*Results of Agglutination Tests in Case 1**

Antigen	Serum	1:30	1:60	1:120	1:24	1:480	1:960
Patient's culture.....	Patient's serum	+	+	+	+	+	+
Patient's culture.....	Abortus serum.	+	+	+	+	+	Sl.
Brucella abortus.....	Patient's serum	+	+	+	+	+	Sl.
Brucella melitensis....	Patient's serum	+	+	+	+	+	—
Patient's culture.....	Normal serum..	—	—	—	—	—	—

* In the table plus indicates complete agglutination; Sl., slight agglutination, and minus, no agglutination.

being confined for the most part to the late afternoon and evening. He was also suffering from pain in the legs. Physical examination revealed an enlarged and tender spleen. Nothing else abnormal was revealed, except certain painful areas on the lower extremities, which were red, edematous, and 2 by 3 inches (5 by 8 cm.) in diameter. One was located above the inner (right) malleolus. Others were present over and adjacent to the inner surface of the heads of both tibias. Although no cardiac lesion was discernible, a blood culture was advised on suspicion of a subacute bacterial endocarditis.

Results of the blood examinations are shown in table 4. Blood culture (table 5) in the seven days following incubation

Table 4.—*Results of Blood Examinations in Case 2*

Date	Red Blood Cells	Hemoglobin, per Cent	White Blood Cells	Polymorphonuclears, per Cent	Lymphocytes, per Cent	Mononuclears, per Cent
12/ 5/25	6,000,000	85	7,111	62.1	27.3	10.0
12/11/25	5,500,000	85	6,800	60.8	30.1	8.9

at 37 C. showed that typical colonies of *Brucella abortus* had developed. The blood serum showed complete agglutination in a dilution of 1:15 and slight agglutination in a dilution of 1:30, when set up with a living saline suspension of *Brucella abortus*. The Widal reaction was negative. The urine showed a slight glycosuria, but was otherwise normal. December 5, a second sample of blood was drawn, from which a growth of *Brucella abortus* was obtained, December 12.

December 11, 15 and 21, blood samples were drawn, and cultures and serologic tests made (table 5).

The patient's condition remained approximately the same. The temperature in the morning was practically normal. By noon, there was a slight elevation and he felt very tired. At about 3 p. m. each day, the temperature was usually 100 or 100.5, and by evening it would be 101, or perhaps slightly higher. The patient felt weak and chilly. During the evening

Table 5.—*Results of Cultures and Animal Inoculations in Case 2*

Dates Samples Were Collected	Blood		Urine	
	Cultures	Guinea-Pigs	Cultures	Guinea-Pigs
11/24/25	+	+	..	..
12/ 5/25	+	+	—	—
12/11/25*	—	—	..	..
12/15/25*	—	—	..	..
12/21/25	—	—	..	..
1/ 4/26	..	..	—	—

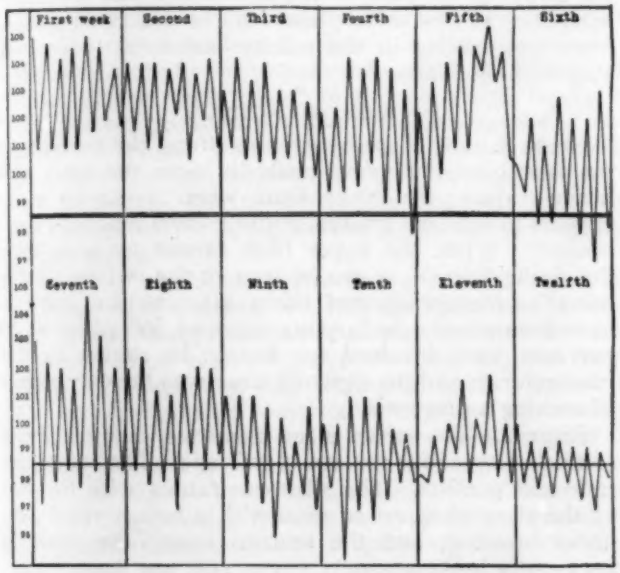
* One per cent of mercurochrome given intravenously.

or early part of the night, there was profuse sweating. December 9, the student was removed to the university infirmary and, December 11, was given, intravenously, 30 cc. of a 1 per cent solution of mercurochrome. December 15, he was given a second injection, intravenously, of 37 cc. of mercurochrome.

Both injections were followed by chills and the temperature increased to 103 but returned to normal within four or five hours. After the first injection of mercurochrome, the patient had none of the symptoms of undulant fever, such as heavy sweats and the general malaise. He has been under observation for two months and, apparently, has made a complete recovery.

SUMMARY

From two patients with undulant fever, two strains of micro-organisms indistinguishable from *Brucella abortus* have been isolated. The organism was isolated seven times from the blood and twice from the urine in case 1, while it was recovered only twice from the blood and not from the urine in case 2. There was a marked difference in the severity of the disease in these cases. The course in case 1 was extended over a period of twelve weeks. The patient was confined to his bed practically all this time. There was extreme emaciation and anemia with marked debility. The temperature was of the remittent type and fluctuated between nearly normal in the morning to 103 and 105 in the evening. This high temperature was followed by a chill and profuse sweating, after which the temperature returned gradually to normal.



Temperature range in case 1.

Case 2 was comparatively mild. The patient was not confined to his bed during the course of the disease, but he rested often in the afternoon because he felt weak, tired and unable to work during the whole day. The type of fever was identical with that in case 1, but the temperature was never higher than 101.5. There was practically no change in the blood picture. All of the other symptoms were essentially the same as those observed in case 1, except that all were much less serious.

Biologically, the two cultures isolated from these cases behaved like *Brucella abortus* (Bang). By the agglutinin absorption test, they showed that they were of the abortus variety rather than melitensis. We produced abortion in two heifers in their first pregnancies by injecting some of the culture intravenously. A placentitis typical of *Brucella abortus* infection in cattle was caused, and the cultures were recovered from the placentas and various organs of the fetuses. The cultures were virulent for guinea-pigs and produced lesions which, in their gross appearance, were typical of those produced by cultures of *Brucella abortus* that have been isolated from cattle. We do not know the source of the infection in either of these cases, unless it may have been the milk. Both patients were in the habit of drinking comparatively large amounts of milk each day. Patient 2 spent his summer vacation on a dairy farm where infectious abortion existed in the herd, but he did not come in direct contact with any cases of abortion. The milk which was consumed by patient 1 was studied and found to be heavily infested with *Brucella abortus,* some of these strains being extremely virulent for guinea-pigs. In a few instances we were able to infect guinea-pigs by feeding them sediment from the milk. Neither dairy farm has had swine for the last three years, and no abortion in the swine was observed when they were kept. Neither patient had been in contact with goats nor had drunk goat's milk nor eaten imported cheeses. Although we do not have direct evidence to incriminate the milk as the source of infection, it seems the most logical factor in these cases.

CHRONIC ULCERATIVE COLITIS *

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By the term "chronic ulcerative colitis" I refer to a disease of the colon which has been variously named by different writers on the subject. Such men as Wilks and Moxon,[1] White,[2] Hawkins,[3] Jex-Blake,[4] Bassler,[5] Stone,[6] Yeomans,[7] Lynch and McFarland,[8] Logan [9] and Bargen [10] have evidently been dealing with the same disease under such names as idiopathic ulcerative colitis, nonspecific ulcerative colitis, asylum dysentery, innominate ulcerative colitis, and chronic ulcerative colitis. With the exception of Logan and Bargen in their more recent writings, they all agree that the discovery of any specific cause, such as the bacillus of tuberculosis, bacillus of Shiga, bacillus of Flexner, or *Endameba histolytica,* in connection with the disorder of the colon, rules out the so-called nonspecific type. Certain writers have thought that *Endameba histolytica* attacked the intestine and produced conditions that resulted in the development of chronic ulcerative colitis. *Endameba histolytica* was found on examination of the stool in 12 per cent of Logan's series. Others have thought that *Bacillus coli* and some of the pyogenic organisms prevalent in the contents of the colon appeared to assume

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* From the Section on Proctology, Mayo Clinic.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

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certain capabilities that resulted in the production of the disease. I have seen *Endameba histolytica* many times in the stools of patients with chronic ulcerative colitis, but I do not believe that these organisms were a causative factor, nor do I believe that *Bacillus coli* or any of the other organisms usually considered capable of taking on certain unusual characteristics play any part in producing the disease. They all may get into the picture ultimately and the pyogenic organisms usually do, but that is another matter.

ETIOLOGY

Bargen has unquestionably discovered the organism causing the disease. He has described it as a gram-positive diplococcus which has a tendency to be lancet-shaped and is a little larger than the pneumococcus. It does not form capsules and shows little tendency to grow in chains. It has definite and characteristic cultural features. In association with Bargen I have obtained, from the base of ulcers, cultures in which he first identified his diplococcus. He injected animals intravenously with from 2 to 5 cc. of a twenty-four hour dextrose-brain broth culture containing the organism in predominance, and in some instances from 3 to 8 cc. of a pure culture of the diplococcus. Lesions were produced in the colon which were in all essentials like those of chronic ulcerative colitis in man. The disease seemed to elect the lower colon for primary attack. The organism was reisolated from the mesenteric lymph nodes and the blood stream, and, when reinjected, produced similar lesions. Rabbits were injected and the organisms were recovered in virulent form from the gallbladder. Most striking in this connection was the isolation of a diplococcus from the periapical abscesses of patients during acute exacerbations of the disease. With these organisms Bargen again succeeded in producing characteristic lesions in the colon. This was also accomplished with cultures from the tonsils.

Further confirmation of the authenticity of this organism was noted in patients with chronic ulcerative colitis after tonsillectomy and extraction of teeth. Some of them suffered acute exacerbation of the bowel disease, and since this is also inclined to follow acute infections of the upper respiratory tract, the conclusion seems obvious that the disease is infectious and occurs periodically as a result of the release of these organisms into the blood stream.

DIAGNOSIS

It was very difficult to diagnose the disease previous to the use of the roentgen ray and the accurate use of the sigmoidoscope. Diagnosis was made at necropsy in the early days. The notorious nondependability of the history in connection with the differential diagnosis of diseases of the colon makes one wonder whether it was ever possible to make a diagnosis before these two methods were used. In recent years reliance for the diagnosis has been placed chiefly on a combination of the findings of the roentgen ray and the sigmoidoscope. The former show certain characteristics, such as spasm and marginal feathering in the acute stages, and stricture and obliteration of the haustra in the chronic. The findings by the sigmoidoscope have been as variable as the number of men who have attempted to describe them. It is therefore my purpose to attempt to describe the various stages of chronic ulcerative colitis as I have seen them through the sigmoidoscope. I have examined all the patients recently described by Logan and Bargen except those who came to the Mayo Clinic previous to August, 1919, a total of 473 patients. I have also had the opportunity, while treating these patients, as well as taking the cultures in connection with Bargen's work, to observe the different phases and types of ulceration by repeated examinations of the same patient. Some of them were treated and examined daily for periods varying from one to three months. In this manner the appearance of the bowel during the active stages and periods of healing and remission has been noted. Even now however, I am somewhat hesitant about offering a tabulated outline of the different phases of the lesions of the rectum and sigmoid.

Chronic ulcerative colitis probably has an acute onset. When patients present themselves for examination, the history usually concerns a disease of a chronic character with remissions. Few are seen during the first attack. The usual history is one of recurrent attacks of "bowel" trouble, apparently incited by an acute cold, sore throat, tonsillitis or bronchitis. Such patients usually consult their physicians and are apparently cured by various general measures; evidently the relief from this disorder occurs during the remission stage of the disease. As the disease advances the tendency is for its activity to become constant, probably the result, at least in part, of the invasion of the original lesions by organisms other than those which caused the disease. I have seen the bowel at the time of the first attack and the characteristics in this acute phase may be described as follows, progressing in the manner indicated to further stages of the disease.

PERIOD OF ACTIVITY

Stage 1. A diffuse hyperemia affects the mucosa of the bowel usually more markedly near the anus and lower rectum; the upper limit, when it can be seen, appears to fade out gradually into normal mucous membrane.[11] When the upper limit cannot be seen with the sigmoidoscope, it can be seen in the outline of the colon in roentgenograms taken after barium enemas have been given. In Logan's series of 560 patients, 20 per cent were involved too low to be shown by the roentgen ray, and the sigmoidoscope was the only means of making a diagnosis.

Stage 2. The second stage manifests itself as edema or thickening of the mucous membrane. The hyperemic state still persists. The slightest trauma with the end of the sigmoidoscope or even with a cotton swab produces bleeding, and the mucous membrane itself is very easily broken.

Stage 3. Probably the most significant phase, from a diagnostic point of view, is the development of miliary abscesses in the mucosa. These abscesses are not identified with the lymph follicles but are situated diffusely throughout the diseased area. The average size of these abscesses is about 1 mm., and they are situated immediately beneath the superficial layer of the mucous membrane.

Stage 4. The abscesses rupture and leave miliary ulcers which appear as numerous yellow spots scattered over the wall of the bowel. When these spots are wiped off with a cotton swab, the bleeding bases of the ulcers appear as myriads of red spots. After this stage I believe remissions are most frequent, and that with healing the ulcers are replaced by scars of the same size. The numerous scattered pinhead ulcers representing the active disease, associated with pocklike scars giving evidence of former activity, form a picture which is to me pathognomonic and constitutes the most important single piece of evidence in diagnosing chronic ulcerative

11. There are few exceptions to this rule. We have seen only about six patients in whom the rectum and sigmoid appeared normal while the disease was in the colon above.

colitis. In fact, I believe that it is possible to determine the previous existence of chronic ulcerative colitis in patients who have no symptoms at the time of examination by the pocklike scars, whch I have called "the footprints of previous activity."

The pictures represent the four chief periods or stages of activity. After remissions and exacerbations, another type of ulcer is superimposed on the small petechial ulcers as a result of secondary infection. These ulcers extend out into the scarred areas and into the normal mucous membrane. They are superficial and have irregular margins but may become quite large (from 1 to 3 cm. in diameter), and in advanced or very severe cases it is this phase of the ulcerative process that results in the destruction of most of the mucosal surface. The "secondary infective" type of ulcer is the most persistent and resistant to treatment, and often after the original disease has subsided it remains and requires local treatment through the sigmoidoscope.

PERIOD OF REMISSION

During these periods of activity, the infective process extends into the submucosal and muscular layers and there is marked inflammatory reaction, as indicated by the extensive lymphocytosis. With healing, fibrosis and thickening take place, and the characteristic thickened and contracted wall of the bowel is due as much and probably more to this process than to the small petechial scars seen as "footprints" in the superficial layers of the mucous membrane. The tubelike, narrowed and thickened bowel wall presents the second diagnostic feature which can be seen through the sigmoidoscope and, when the disease extends high enough, gives the appearance of the straightened tube in roentgenograms of the colon.

Chronic ulcerative colitis may be complicated by accompanying diseases. Polyps, which are usually small and almost always ulcerated, may exist either in small numbers or as multiple polyposis involving the entire colon. The stricture may be limited to the sigmoid or rectum alone; it may constrict the intestine segmentally, or the whole colon may be constricted to a diameter of 1 cm. There have been several cases at the clinic in which carcinoma grew diffusely into the diseased tissues of the bowel. Diverticula may be associated, in which case there is usually a spasmodic contraction of the bowel, but this is not characteristic, as it is seen with most irritative disorders of the bowel. In some cases infection with *Endameba histolytica* will be sufficient to cause the formation of typical umbilicated ulcers due to this organism, besides the type characteristic of chronic ulcerative colitis.

TREATMENT

Treatment has usually been empiric, and dependent chiefly on the extent of the disease, diet, internal and local medication, and irrigation of the bowel being used in the general run of cases, and operation in the most serious.

A diet high in protein with small residue is usually advised. Bismuth, kaolin and olive oil have been widely employed. Logan prescribed iodine by mouth for a few of his patients and produced astonishing remissions (apparent cures). Emetine hydrochloride has usually been given to patients whose stools contained *Endameba histolytica*. Silver nitrate, mild silver protein, acriflavine, fused silver nitrate, potassium permanganate, olive oil and bismuth, witch hazel, oxyquinolin sulphate and other medicaments have been used through the sigmoidoscope and I believe are very necessary in healing the residual ulcers of the secondary infective type which so often remain after the original disease has subsided.

Surgical treatment has consisted of appendicostomy, cecostomy, ileostomy, exclusion of the colon, colectomy and ileosigmoidostomy. Appendicostomy and cecostomy I regard as of little value; it is possible that the cures reported following these procedures have been the remissions characteristic of the disease. Colectomy is accompanied by an enormous risk in the acute stages and is unnecessary (with an ileostomy) because the bowel usually heals, contracts and becomes inactive periodically until almost the same result is produced. Rarely do the contractures due to the fibrous changes occur segmentally with the formation of abscesses when the lumen of the bowel is completely closed off by the contractures. In such cases, colectomy may be necessary. Ileosigmoidostomy will usually prove unsatisfactory. The rectum and the sigmoid are the sites of the original attack, and it is practically certain that as long as the disease exists these two portions will be affected. Furthermore, when exacerbations occur, these two parts of the colon are chiefly and most seriously affected. I have examined such patients repeatedly, and know of one patient whose ileostomy had to be restored eight years after the ileosigmoidostomy. I examined her frequently and saw the rectal ulcers flare up at irregular intervals, subside and heal, and contract again until the rectum was a tube 1 cm. in diameter.

Operation is indicated only as a life-saving measure. Ileostomy is, I believe, the best operation. The ileum should be cut across about 15 cm. above the ileocecal valve and both ends brought out through the abdominal incision. Exploration or handling of the colon is prohibitive, as soiling and infection with resultant peritonitis occur often in consequence. If the bowel is actively involved, a successful ileosigmoidostomy is a tribute to the surgeon, but success with only two or three such patients is doubtful; after only a few months' observation it is quite probable that the characteristic exacerbations will develop and the patients will be more uncomfortable than ever with the irritative ileac fluids pouring into the inflamed and ulcerated sigmoid and rectum. The suggestion that the contents of the ileum may take on curative characteristics and produce healing in the sigmoid and rectum is in all probability an extremely remote possibility.

Bargen has prepared a vaccine and vaccine filtrate which have been given as a routine in the early treatment of the disease to patients at the clinic with chronic ulcerative colitis. Later, all patients are treated with autogenous vaccines. Most of the patients have also had other forms of treatment, such as iodine, emetine and special diets, but the latter forms of treatment have certainly not lent much encouragement in the past.

From Feb. 1, 1924, to March 1, 1926, 132 patients with chronic ulcerative colitis have been treated in the Mayo Clinic. Fifty-eight are clinically well, and twelve have been under treatment less than a month. In seventeen cases the stools became normal and the weight satisfactory, but ulceration in the rectum and sigmoid persisted, as revealed by sigmoidoscopic examination. However, I believe that the chronic ulcerative colitis was cured in most of these and that the ulceration was of the secondary infective type, which requires local treatment. I do not believe that injections of vaccine will destroy such ulcers. Nine patients were classified from their statements and general observation as 50 per cent improved. Eighteen have not been heard from,

and it is reasonable to suppose that some of them are well.

Seven patients were subjected to ileostomy, three because of perirectal complications and four because their bowel disease was so advanced and the condition of their general health so serious as to demand this emergency procedure.

There were four deaths. Two patients died from carcinoma of the colon, one from lymphatic leukemia, and one from inanition, the usual cause of death in such cases, and from fatty degeneration of the abdominal viscera.

Besides the use of vaccine filtrate in this group of 132 patients, the filtrate has been sent to a number of physicians who have written to the clinic concerning patients suspected of suffering from chronic ulcerative colitis. In some instances very gratifying results have been reported. It is quite evident that the injection of the vaccine and vaccine filtrate stimulates the formation of specific antibodies.

CONCLUSIONS

1. Chronic ulcerative colitis is a disease produced by a specific micro-organism, the lancet-shaped diplococcus of Bargen.

2. The appearance of the mucosa of the rectum and sigmoid is characterized by four phases during the active period: (*a*) hyperemia, (*b*) edema, (*c*) miliary abscesses and (*d*) miliary ulcers.

3. A stage of remission or healing of the ulceration leaves a glazed, scarred (pitted) mucosa.

4. The granular ulceration, pitted scars, and contraction of the lumen of the bowel are pathognomonic.

5. The sigmoidoscope is the most valuable means of diagnosing the disease. Rarely will roentgen-ray examination or any other method reveal it when it cannot be diagnosed through the sigmoidoscope. Practically all cases can be diagnosed with this instrument alone.

6. The most rational form of treatment consists in (*a*) the eradication of foci, (*b*) special diet and general supportive measures, (*c*) specific vaccine or vaccine filtrate as the curative agent, (*d*) local medication through the sigmoidoscope to cure the secondary infective type of ulcer, and (e) ileostomy only as a means of saving life.

ABSTRACT OF DISCUSSION

DR. JOHN M. BLACKFORD, Seattle: Ulcerative colitis is a very serious disease. Most of us have seen these patients with very extensive ulcerations, the secondary results of injection superimposed on the primary trouble. At the Mayo Clinic, approximately one patient in a thousand has suffered from this disease. Out West, we find approximately one patient in 300 suffering from chronic amebiasis. I have not had experience with the vaccine Dr. Buie uses, but if he can effect a cure in 50 per cent of these cases, vaccines are valuable therapeutically.

DR. E. C. FISHBAUGH, Los Angeles: I should like to call attention to the use of stovarsol in the treatment of ulcerative colitis not due to amebic infection or the bacillary dysenteries. The use of stovarsol in such instances is empiric, but has been most gratifying in a selected group of cases. Ulcerations that had been present for as long as three years have disappeared within two weeks after treatment was started. The dysentery that had been present for an equally long period likewise disappeared. At first, 0.25 Gm. of stovarsol was given, three times a day, for one week. On this dosage quite a few patients developed arsenical poisoning. Recently, 0.125 Gm. has been given, three times a day, for periods of one week at a time with equally gratifying results and less danger of poisoning.

DR. H. G. WALCOTT, Dallas, Texas: Apparently, Dr. Buie has isolated the organism responsible for at least some of the cases of chronic ulcerative colitis. We have covered up our ignorance of the cause of this disease by classifying it as idiopathic or simple ulcerative colitis. Dr. Buie's work will enable us to classify these cases under definite varieties according to the infecting organism.

DR. FRANK SMITHIES, Chicago: I never like to be known as a "bear in the market," but it seems to me that we have to be rather cautious in saying that the only cause of chronic colitis is this organism of which Dr. Buie speaks. I do not deny that a form of ulcerative colitis, which might have been named "idiopathic," has been produced by the methods described. I should like to know whether a control series of experiments has been carried out, using other organisms found about the tonsils, the teeth and the gallbladder and colon walls, and what effects on the colon followed. I am particularly interested in this subject because seven years ago I exhibited a number of specimens of colons resected by Dr. N. M. Percy showing ulcerative lesions, and pointed out that in these specimens from colon stasis patients, one could see every stage of a systemic infectious process, from acute to chronic. It did not appear to us at that time, nor does it yet, that there is one organism on which we can place all the blame for causing the colitis. The value of specific vaccine therapy seems problematic. Dr. Buie reports that about fifty persons have been reported as cured by the vaccine, but all of these patients have had other treatment as well; namely, the eradication of focal infections, the exhibition of medicines, suitable diet, etc. All of us realize that the cutting off of the supply of bacteria by removing focal infections and giving general care is not infrequently followed by as high a percentage of "cure" as this series demonstrates. Furthermore, one should be careful about reporting the curing of these cases under from three to five years. Many of these patients have a recurrence after being well for a considerable length of time. There is a certain periodicity in the life history of the affection. We should be very cautious in subjecting patients to indiscrimate vaccine injections—a treatment not wholly free from danger.

DR. LOUIS A. BUIE, Rochester, Minn.: I have had the opportunity to examine about 473 cases of this disease over periods of one, two and three months. In spite of that fact, I am still somewhat hesitant about tabulating a definite list of pathologic characteristics. However, there are an abnormal mucous membrane and ulcers of definite character. We have made cultures from them and been unable to produce this disease. What I want to say is that the thing that impresses one when looking through the proctoscope is the little miliary ulcer that is so characteristic of this disease. Dr. Fishbaugh has told about a treatment of ulceration in the rectum with stovarsol. I am convinced that Dr. Fishbaugh is dealing with *Endameba histolytica*. I have done the same thing with such cases, and have obtained the same prompt response, with the clearing up of the ulceration in a week or ten days. So one is dealing with another thing, and what I want to be remembered is that chronic ulcerative colitis is a specific picture.

Hay-Fever.—It is a curious fact that although many hay-fever subjects may react most strongly to the pollen of *Phleum pratense* (timothy grass)—that is to say, out of those limited numbers of pollens usually employed—their hay-fever will begin many weeks, often two months, before the timothy grass comes into flower. Moreover, in many parts of the country this grass is comparatively rare. One may walk for miles without seeing a single specimen. It is clear, therefore, that hay-fever is not caused by timothy grass pollen. Freeman, however, denies to the toxin any specificity. Any pollen, he says, may produce the same reaction, but in a lesser degree. A mixed antigen, therefore, is not necessary, and an attempt to produce a specific antigen is in vain; and for treatment all that is necessary is a timothy grass pollen antigen. I doubt if this hypothesis is tenable.—Chandler, F. G.: *Lancet*, Sept. 4, 1926.

OPERATION FOR CORRECTION OF MILD CLAW-FOOT, THE RESULT OF INFANTILE PARALYSIS*

FRANK D. DICKSON, M.D.
AND
REX L. DIVELEY, M.D.
KANSAS CITY, MO.

In all cases of claw-foot due to anterior poliomyelitis, there is weakness or paralysis of the flexor longus hallucis and the flexor longus digitorum, with overaction of the corresponding extensor tendons, resulting in prominence of the ball of the foot and the development of hammer toes.

Several operative procedures for the correction of such claw-foot deformity with hammer toes have been devised and are being successfully used. These procedures all have as their basis the utilization of the extensor longus hallucis and the extensor longus digitorum for the purpose of dorsally flexing the anterior part of the foot, and at the same time removing their deforming action on the toes. Sherman [1] and McKenzie Forbes [2] have advised the transplantation of these tendons into the heads of the metatarsal bones to correct this condition. The Forbes procedure was devised originally, we believe, for use in claw-foot which was not due to infantile paralysis. Hibbs [3] has advised the transplantation of the same tendons into the cuneiform and cuboid bones.

Admitting that many successful results have been reported by these methods, it has never seemed to us that such a procedure was mechanically correct. Arching of the front of the foot to produce the so-called metatarsal arch is best secured by the plantar flexors acting against the resistance of the heads of the metatarsal bones, and it is difficult to see how the lifting action of such transplanted extensors can exert any very efficient correcting force on the plantar convexity of the ball of the foot found in these cases. Furthermore, the great toe plays a rather important part in propelling the body weight forward, and a transplantation of the extensor proprius hallucis into the metatarsal of that toe in no way restores this function, which is lost or weakened by the paralysis of the flexor longus hallucis.

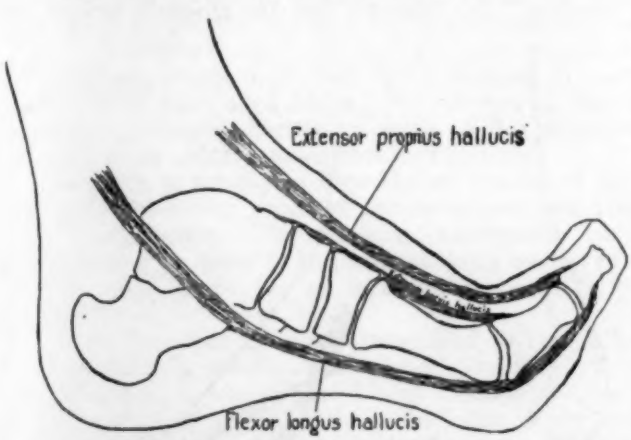

Fig. 1.—Normal relationship of the tendons to be transplanted. There is a paralysis of the flexor tendon of the great toe with compensatory overaction of the extensor.

It seemed to us that the best result in a claw-foot of the paralytic type would be obtained if a tendon transplantation were made which could utilize this action of the flexor tendons against the broad heads of the metatarsal bones; in other words, the transplantation of the extensors into the flexors of the toes. It was appreciated that, in making such a tendon transplantation, we should be utilizing a muscle of unlike function; but we felt that if even a moderate restoration of power in the flexors could be secured, the result would be satisfactory in that the ball of the foot would be elevated and some thrusting force be restored to the great toe. If no power developed, we still felt that the tension on the flexor longus hallucis tendon would serve effectively to hold up the ball of the foot.

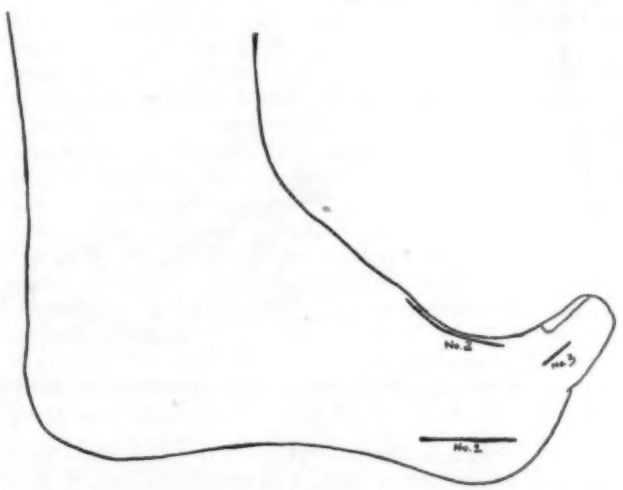

Fig. 2.—Incisions to be made for the transplantation: 1, incision for dissection of flexor longus hallucis; 2, incision made to excise extensor proprius hallucis; 3, incision for interphalangeal arthrodesis.

To carry out the procedure outlined above, it would seem necessary to transplant all the extensors into the flexors, which would be a very tedious and mutilating operation. As a matter of fact, we have found that in all except very marked claw-foot deformities, the transplanting of the extensor proprius hallucis into the flexor longus hallucis has been sufficient to overcome most of the deformity and give a very satisfactory result. In severe cases, we transplant the extensor proprius hallucis into the flexor longus hallucis and utilize the extensor longus digitorum as seems best to fit the case. It should be stated that such operative procedures as lengthening the plantar fascia by the method of Steindler, stabilizing the foot and plastics on the heel tendon, must be done to overcome other deformities in the foot that need correction.

The procedure is as follows:

1. The flexor longus hallucis is exposed by an incision (fig. 2) along the inner margin of the head of the first metatarsal bone.

2. The tendon is grasped with tenaculum forceps posterior to the head, and its distal portion drawn as taut as possible. This causes the great toe to be acutely flexed at its metatarsal phalangeal and interphalangeal joints.

3. The extensor proprius hallucis is then isolated and freed from its attachment to the great toe. A tunnel is then made in the soft parts on the inner side of the first

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Sherman, H. M.: Operative Treatment of Pes Cavus, Am. J. Orthop. Surg. 2: 374, 1905.

2. Forbes, A. M.: Claw Foot, and How to Relieve It, Surg. Gynec. Obst., January, 1913, p. 81.

3. Hibbs, R. A.: An Operation for Claw-Foot, J. A. M. A. 73: 1583 (Nov.) 1919.

metatarsal posterior to its head, and through this the proximal end of the extensor is passed into the ball of the foot.

4. Under considerable tension, the extensor tendon is then attached to the taut flexor tendon by silk or chromicized catgut sutures (fig. 3).

5. Finally, an arthrodesis of the interphalangeal joint of the great toe is done, enough bone being removed to allow the toe to be straightened (fig. 4).

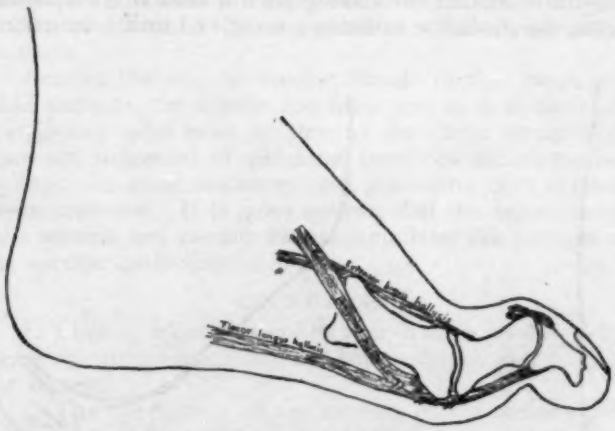

Fig. 3.—Relationship of the transplanted extensor proprius hallucis; how the great toe is flexed by the taut flexor tendon.

6. A splint is applied to the great toe, and such plaster dressing to the entire foot as is needed to hold it in the desired position. The splint is allowed to remain on for five or six weeks, and then exercises are given to build up the transplanted muscles.

This procedure has been done in our clinic in fifty-six cases in the last three years. The results as to correction of deformity have been most satisfactory, and in most of our cases a very gratifying amount of plantar flexion of the great toe has been secured. The latter is a considerable service in restoring the propulsion power of the great toe which is necessary for correct walking.

1807 Federal Reserve Bank Building.

ABSTRACT OF DISCUSSION

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have had a limited experience with this operation and can heartily recommend it. Other operations have been advocated, such as the transference of the extensor proprius through the lower extremity of the first metatarsal bone, but these measures do not give uniformly satisfactory results. This procedure gives a splendid correction and holds the toe in perfect position. In severe types of claw-foot, other procedures must, of course, be followed. I have found the transplantation of the dorsal flexors of an advantage in claw-toes, and also the Steindler procedure of stripping forward the plantar flexors. However, for correction of the first metatarsophalangeal joint, no procedure meets the requirement so well as that just described.

DR. HENRY W. MEYERDING, Rochester, Minn.: There is no question as to the value of this operation. Those who have seen the results as obtained by Drs. Diveley and Dickson recognize a very simple method whereby we can correct this deformity. Dr. Diveley has said that this is not an operation to correct very severe types of claw-foot, and I am sure that the doctors who brought the work out did not expect it to do so. But the results that I have seen have been very good indeed. The extensor proprius hallucis to the metatarsal head has not been very satisfactory, and I am sure we are going to adopt this arthrodesis combined with tendon transference more and more as it corrects the deformity, increases plantar extension of the toe and supports the metatarsal head.

DR. C. L. LOWMAN, Los Angeles: This is an interesting and ingenious procedure for the correction of this condition. I think it would be preferable to consider the deformity not as a claw-foot but as an equinus with the contraction of the extensor tendons. The term "claw-foot" is most commonly used to indicate the ordinary congenital contracted foot. Many factors may produce this deformity in poliomyelitis, and I feel that the imbalance between the toe flexors and extensors is not entirely to blame. A strong peroneus longus and moderately weakened anterior tibial, with the common extensors used in dorsal flexion while pronating action of the peroneus longus depresses the first metatarsal, may produce this same condition. Also a strong unopposed action of the Achilles tendon may cause it. Hoke has pointed out that a tarsal malformation begins with a lengthening of the neck of the astragalus, and the arch being too high on top and too short on the bottom. We have found that a simple relaxation of the plantar structures after the method of Steindler, plus a Hoke's stabilization in which we alter the length of the neck of the astragalus, gives us ample means of raising the forefoot so the metatarsal angle is increased; this, with the transplantation of the extensor proprius hallucis by Robert Jones' method to the head of the first metatarsal, usually at a later date serves to control the deformity. We cannot expect to control the foot deformity by simple transplantation of any toe tendons or any combination of them, but this may serve well to control the toe deformity. We have tried various other procedures, but have used the foregoing combinations with entirely satisfactory results. The simplicity of Dr. Dickson's procedure, and the satisfactory results over this length of time on a number of cases which he reports, makes it seem well worth while to try out, as I feel it is wrong to have any set procedure to use in poliomyelitis cases. By a very careful study, after a reasonable length of muscle reeducation, one can get more perfect results by adapting various procedures or various combination of procedures that seem to fit the case best in relation to the type of load to be placed on the part.

DR. ARTHUR STEINDLER, Iowa City: I should like to add a few words regarding the operative aspects of these cases of claw-foot. Dr. Dickson's and Dr. Diveley's methods are

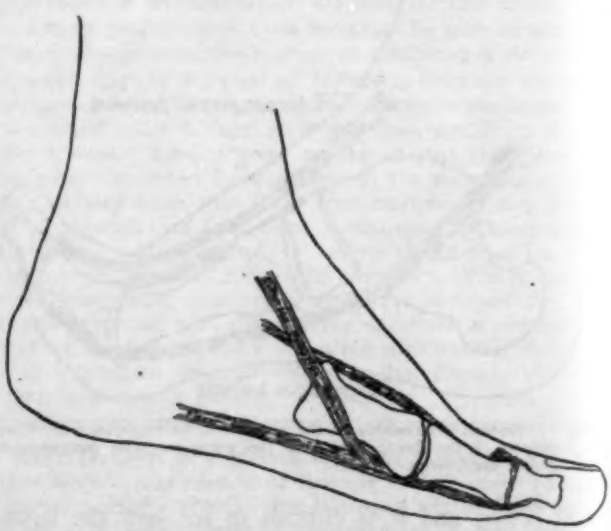

Fig. 4.—Relationship after the interphalangeal arthrodesis.

excellently conceived and seem to be eminently sound. The stripping of the os calcis, the wrenching and osteotomy restore the form; this operation is to restore balance and has primarily nothing to do with the restoration of form. It has been our practice to restore form first and then wait for the restoration of balance by natural means, if such would occur. If one has reasonable doubts that such restoration of balance will not occur, there is no reason why one should not proceed with the restoration of balance by such operative methods. We have tried the Sherman and Hibbs procedures but I

cannot say that we have succeeded. I believe that the method of Dr. Dickson is much more sound mechanically, using as it does the sling constituted by the long flexor of the toes and the extensor of the big toe as leverage to pull up the sunken head of the first metatarsal bone.

DR. REX L. DIVELEY, Kansas City, Mo.: When this operation was first devised, we thought it best to anchor the stub of the extensor proprius hallucis to the short extensor tendon of the great toe, this procedure to restore extension to the toe. We found, however, that it was unnecessary to do this, as the short extensor hypertrophied sufficiently to give ample extension power. When a new operation is devised and given to the profession, many surgeons are prone to feel that the old operative procedures have been giving success and look on the new ones with skepticism; hence, they are not given a trial. Other men will perform the various new operative procedures for every known deformity, expecting to achieve results. Every operative procedure is devised for a certain definite purpose and should not be applied until the member or part has been thoroughly studied to see that this particular operation will give results. In many cases reported, the Steindler operation was performed, but as Dr. Steindler points out, this operation overcomes marked deformity which is evidenced. Our procedure not only overcomes the mild deformity, but also restores plantar flexion to the great toe. By the procedure that we have tried to describe, the tendon is working as a normal tendon should; namely, with a pulley and friction action.

POISONING WITH WATER HEMLOCK (CICUTA MACULATA)

REPORT OF SEVENTEEN CASES

LOUIS M. GOMPERTZ, M.D.
NEW HAVEN, CONN.

Among the poisonous plants growing in temperate regions and known to civilized man, *Cicuta,* or water hemlock, is characterized by a highly pronounced toxicity. Its deleterious effects on the human system are well known, owing to the fact that it is found in nearly all parts of the United States. It is of general interest because poisoning directly traceable to this plant has caused many deaths among men and animals.

Recently, in the city of New Haven, a series of cases of acute poisoning occurred simultaneously and from the same source. The resulting investigation which determined the cause to be *Cicuta* prompts me to report these cases briefly, so as to direct attention to the existence of this plant.

Cicuta has been definitely recognized in the United States since the middle of the sixteenth century. Prior to this time, it was confused with *Conium* and, as it could not be distinguished from the latter, doubt as to its identification in those early days accordingly arises. The poison hemlock administered to criminals of Greece and Rome in the days of antiquity probably was *Conium* or an extract of mixtures of several poisonous plants. There is reason to believe, however, that it was not *Cicuta.* Thus, in the detailed record of Socrates' death, the symptoms described bear little if any resemblance to those clearly established in connection with unquestioned *Cicuta* poisoning.

In 1541, Konrad Gesner[1] first definitely distinguished *Cicuta* from *Conium* and designated the former plant as *Cicuta aquatica.* Since then it has been thoroughly studied, the numerous botanic species thereof being carefully classified so as to be readily recognized. *Cicuta* is a perennial, a member of the parsnip family, the species growing in the eastern part of America being known as *Cicuta maculata.* This often is erroneously called parsnip or wild parsnip, and likewise occasionally designated by various other common names, such as "cowbane," "death of man," "snake weed" and "wild carrot." Its habitat is among swamps; frequently it is found along irrigating ditches and wild meadows.

1. Gesner, Konrad: Historia Plantarium, Paris, 1541, p. 261.

DESCRIPTION OF THE PLANT

The *Cicuta* plant has a jointed, smooth, hollow green stem from 3 to 6 feet high and bears rather large leaves, divided several times, and very narrow and finely toothed along the margins. It grows a tiny, greenish white flower, arranged in dense compound clusters, appearing mostly at the tops of the branches. The root has a characteristic bunch of spindle-shaped shoots giving forth a yellowish, gummy secretion similar to that of the parsnip, somewhat sweetish, and not disagreeable enough to prevent children and even adults from eating quantities sufficient to prove fatal. The root stocks are differentiated from other umbelliferous plants by the presence of a number of transverse chambers which are seen in a section. *Cicuta* also differs from garden parsnip, with which it is often confused, in that the latter has yellowish flowers, a broader leaflet, a single root without a cluster, a rough stem, and does not necessarily grow in wet places.

The first record of the symptoms of *Cicuta* poisoning was published by J. J. Wepfer,[2] in 1679. He gave a detailed account of five children who had been poisoned by the plant and reported the necropsies in the cases that proved fatal. He called attention particularly to the noncoagulation of the blood, a most important observation, which was confirmed subsequently by other investigators. In 1723, Helds, Weinmann and Goritz[3] described the poisoning by *Cicuta,* near Ratisbon, of three students, resulting in the death of two of them. Schwenke,[4] in 1756, reported the poisoning of four children in the village of Overschie. During succeeding years, there were occasional recorded references to poisoning in human beings with *Cicuta,* the latter, however, being of the European variety (*Cicuta virosa*). These instances added nothing essentially new to the toxicology of the plant.

For the first published account of *Cicuta* poisoning in this country, we are indebted to the New Englander John Stockbridge,[5] who, in 1814, referred to three patients, one of whom died in violent convulsions. In 1817 Bigelow[6] and in 1818 Hazeltine[7] described the fatal effects of a poisonous root which, although not identified, probably was *Cicuta.* Since then numerous reports of *Cicuta* poisoning have appeared in American and European literature, showing that, although live stock mainly were affected, human beings were not immune.

A review of the literature of this subject up to 1911 by Egdahl[8] included a total of forty-seven cases, but it is highly improbable that this represents the entire

2. Wepfer, J. J.: Cicutae Aquaticae Historia et Noxae.
3. Helds, Gottfried; Weinmann, J. H., and Goritz, J. A.: Von der Cicu aquatica, und denen aus Gemesung derselben erfolgten Jahren Todesfallen, Sammlung von Natur und Medicin Geschichten, 1722, Winter Quartal.
4. Schwenke, M. W.: Verhandeling über de Waare Gedaante, Aart, und Entwerking, der Cicuta aquatica Gesneri nom Groote-quaterscheerling, Gravenhage, 1756.
5. Stockbridge, John: Account of the Effects of Eating a Poisonous Plant Called Cicuta Maculata, New England J. Med. & Surg. 3: 334-337, 1814.
6. Bigelow: Medical Botany, 1817.
7. Hazeltine, Richard: Fatal Effects of a Poisonous Root, New England J. Med. & Surg. 7: 319-322, 1818.
8. Egdahl, Anfin: A Case of Poisoning Due to Eating Poison Hemlock (Cicuta Maculata), Arch. Int. Med. 7: 348-353 (March) 1911.

number of poisonings due to *Cicuta*. Mary R. Stratton [9] published an account of the poisoning of eleven boys, with two fatal cases, which occurred in the State Home for Dependent Children in Denver. This is the greatest number of cases of *Cicuta* poisoning reported by one observer up to the present time.

TOXICOLOGY

Careful studies of the toxic principles of *Cicuta* have been made by several investigators. The poisonous component of this plant is a resin which was first isolated by Boehm,[10] in 1876, who named it cicutoxin. Cutting the root stock causes an aromatic, yellowish, oil-like substance to exude, with an odor similar to parsnip.

Cicutoxin has been described [11] as a clear, brown, sticky resin having an acid reaction. It was found to be soluble in ether, alcohol, chloroform and dilute alkalis. The root stocks are the most virulent, although the leaves, stems and particularly the basal parts of the plant, especially in the early stages of growth, contain sufficient poison to prove fatal when ingested.

Judging from the case reports, the plant is most poisonous in the spring. The explanation made by some observers is that during the growing season the stored material of the root stock is absorbed in the development of the plant, which is thereby rendered less virulent later in the year. This observation, however, seems to be open to question.

REPORT OF NECROPSIES

Observations at necropsy, made by different observers, may be thus summarized:

1. Noncoagulation of the blood after twenty-four hours.
2. Widely dilated pupils.
3. Multiple hemorrhages of the mucous membrane of the stomach and duodenum.
4. Emphysema and edema of the lungs.
5. Generalized congestion of the central nervous system.

REPORT OF CASES

June 16, 1925, I was called to attend seventeen boys, inmates of the New Haven County Home, who had been taken suddenly ill. The boys ranged in age from 9 to 13 years. All of the children in the institution had been dismissed from their classrooms at 3:30 p. m., apparently well, and immediately adjourned to their playground. At 5:15 the boys were in the dining room at their evening meal. The matron in charge observed that several of them refused their supper and appeared "pale and sickly." Two of the children asked permission to leave the room, complaining of nausea, but before going very far fell to the floor in violent convulsions. About twenty minutes later, when I arrived, five children were in convulsions; twelve others were vomiting and appeared seriously ill. It was evident that the children were suffering from some form of poisoning, and I soon learned that they had partaken of a plant, the nature of which was unknown to me at the time. It later appeared, however, that in a plot of swamp land adjoining their playground water hemlock grew in abundance. While some of the boys had eaten the roots, the majority had partaken only of the leaves or flowers. It is noteworthy that the five boys who had eaten the root stock were very sick with accompanying convulsions, while the other twelve, who had eaten leaves or blossoms but no roots, did not have convulsions.

Without relating in detail all of the cases, that of Clarence D., aged 13 years, is illustrative of those of the convulsive type. He was totally unconscious, manifesting violent tonic and clonic convulsions, frothing at the mouth and protruding eyeballs. The froth was slightly blood-tinged, probably from biting the tongue. There was a marked internal strabismus with pupils widely dilated, the iris being scarcely visible. Cyanosis was extreme. The corneal reflexes were entirely absent. The jaws were firmly set, with violent twitching of the facial muscles—a horrible spectacle. In our necessarily hurried examinations, nothing of importance was noted in the abdomen. The hands were tightly clenched and the finger nails cyanotic. Respiration was rapid, and during the convulsion it seemed as if the boy was about to die from suffocation. The convulsions lasted on an average about ten minutes, gradually diminishing in severity and being followed by a state of exhaustion, the patient remaining unconscious and cyanotic. During the convulsion the pulse rate was increased, but slowed down considerably during the quiescent state. The patellar reflexes were present, but diminished. The greatest number of convulsions noted was in this patient, with a total of six, the least being two. After the last convulsion the lad, apparently exhausted, fell into a deep sleep. On awakening in the morning he was as well as ever, with no recollection whatever of his illness. This was characteristic in all instances.

All of the boys who had eaten of the blossoms or leaves complained of faintness, nausea and general weakness. In some instances, there was slight cyanosis and nervous twitchings. Dizziness was a prominent symptom. Coldness of the extremities and general collapse were present. After treatment there was a prompt recovery in these cases.

TREATMENT

The treatment consisted of gastric lavage and high enemas. In the children who were unconscious lavage was difficult, as the jaws were so firmly set that it was necessary to use metal mouth gags in order to pass the stomach tube. In the cases of those who were able to swallow, hot water containing salt was given, followed by lavage. After the stomachs of all were evacuated it became necessary, in three instances, to administer morphine hypodermically. When indicated, stimulants were administered to the children; active purgation was initiated in each one. In other words, they were treated symptomatically. Normal conditions were thus brought about, as the seventeen patients all made a complete recovery.

SUMMARY

1. The poisonous properties of water hemlock (*Cicuta maculata*) have been recognized since the middle of the sixteenth century.
2. The toxic principles have been separated.
3. A definite train of symptoms prevails in man and animals when the root stock, blossoms or leaves have been eaten.
4. The plant is very poisonous at all times.
5. Eradication of this plant should be advocated.
6. In cases of poisoning by water hemlock, prompt action by the use of emetics, the stomach tube and purgatives can save lives.

I have failed to find another record of so many cases of *Cicuta* poisoning of simultaneous occurrence. It is not unlikely, however, that intoxication by this plant has been widespread in many places. As the single experience here put on record has demonstrated the readiness with which no less than seventeen children were simultaneously affected, in an environment by no means unusual, the problem of prevention emphatically presents itself. The menace of water hemlock should at once be called vigorously to the attention of the authorities wherever this plant grows. The eradication should be inaugurated so thoroughly that the future possibility of poisoning by *Cicuta maculata* will be reduced to a minimum.

1195 Chapel Street.

9. Stratton, Mary R.: Water Hemlock Poisoning, Colorado Med. **16**: 104-111, 1911.
10. Boehm, R.: Arch. f. Exper. Path. u. Pharmakol. **5**: 279-310, 1876.
11. Kunkel, A. J.: Handbuch der Toxikologie, Jena, 1901.

RECOGNITION OF THE EXOPHTHALMIC GOITER PATIENT UNSUITED TO THYROIDECTOMY *

WILLARD BARTLETT, M.D., D.S.
ST. LOUIS

Cheever [1] voiced a universally approved sentiment when he stated that operations for hyperthyroidism will always be attended by a peculiar factor of danger not present in other procedures that are technically similar. I have, with this in mind, chosen a definitely limited field in thyroid surgery in order that the subject may be viewed from as many different angles as possible and in rather minute detail. One's personal experience seems to be reflected most adequately by considering this clinical material under the following headings: diagnosis; patients unsuited to operation; preparation for operation; the impossible patient; the patient who is ready; when to operate.

DIAGNOSIS

A sharply defined diagnosis of exophthalmic goiter is generally accepted by surgeons of the representative goiter clinics in our country and abroad. Wilson states, however, that 30 per cent of the hyperplastic thyroids in the Mississippi Valley states present multiple adenomas; hence one is, I suppose, justified in making a clear-cut diagnosis in about 70 per cent of the patients presenting themselves in St. Louis, whereas one can do no better than speak of a mixed type in many additional instances.

There is, however, such a general misconception of the broader term toxic goiter, outside the clinics referred to, that I feel impelled, before taking up the subject further in detail, to mention specifically the six characteristic features that are thought, in most instances at least, to characterize exophthalmic goiter. These are: typical eye signs, too well known to be mentioned here, which are often missed in earlier phases of the disease; thrills and bruits in the cardinal vessels, which seem to be present in every case; vasomotor symptoms (vomiting, diarrhea and sweating), which are usually characteristic of a severe type of the malady and come rather late; nervous irritability; mental aberrations of a primary nature, not those due to the kidney or other derangements of toxic adenoma; also crises and remissions, which are seen in most patients, provided they live long enough.

These six diagnostic features are by no means all present in every patient, but some of them in combination are in most instances sufficient to differentiate this syndrome from any other picture in the realm of thyroid disease.

PATIENTS NOT READY FOR OPERATION

Tinker,[2] Dinsmore [3] and others in recent times have written instructively of the patient who is not ready for operation. They have taken up goiter in its broadest aspect, and they have differed somewhat in their choice of symptoms which have seemed important; hence, one would seem justified in going to some length in considering the criteria by which exophthalmic patients alone are judged unsuited to operation; viz., high metabolic rate; increased nonprotein nitrogen; hypersensitiveness to oxygen deficiency; lowered blood pressure; loss of weight; absence of self-control, and heart injury.

High metabolic rate is important if considered with the clinical features to be mentioned, although not alone an absolute contraindication. Generally speaking, one prefers to see it under 40 per cent plus.

Increased blood nitrogen has in my experience led to the diagnosis of an advanced independent kidney condition (masked by the symptoms of exophthalmic goiter) which might otherwise have been overlooked.

The patient oversensitive to oxygen deficiency is apparently never a good risk; this is often first discovered at operation, when the color of the blood in the field of operation indicates a persistent cyanosis not dependent on preliminary drugs or on an asphyxiating anesthesia. We try to select such patients by the simple test of having them hold the breath. Instead of doing this from forty to sixty seconds, as is normal, from ten to twelve seconds seems to be the limit with some of them, whereas one had a limit of only five seconds. De Quervain [4] has thought that this sensitivity may run parallel to the metabolic rate, although this matter seems undetermined at the present time.

Blood pressure definitely lowered from a known high level should always warn the operator of increased myocardiac insufficiency; hence, it is to be taken most seriously. The observations of Sise [5] during general anesthesia confirm this opinion.

Great loss of weight is an absolute contraindication to operation. Such patients have little or nothing left to "burn up" in the trying postoperative period, and are therefore somewhat in the position of the balloonist confronted with a cold atmospheric stratum after having thrown over all his ballast.

Absence of self-control is another of the purely clinical phenomena, easily elicited and of the utmost importance; a patient may cultivate it in her waking hours and the clinician be deceived in consequence. However, it sometimes reappears in marked degree during partial gas anesthesia, under which circumstances the patient should by all means be put back to bed until a retrial demonstrates marked improvement in this particular.

Most important of all, as a contraindication, is definite heart injury. We divide the patients with preeminent heart disease into three classes: those who are temporarily, indefinitely or permanently unsuited to operation. The first class have a functional affection; the heart is temporarily exhausted; there is a weak first sound with diastolic shading. They receive no digitalis, and after an average of ten days in bed are ready for operation.

A characteristic patient was Mrs. M., aged 27, admitted, Nov. 10, 1925; the basal metabolic rate was 52 per cent plus; the systolic blood pressure was 155; diastolic, 65; the electrocardiogram was negative; the heart was markedly enlarged; with the apex impulse felt in the anterior axillary; there was a loud systolic murmur at the base of the heart; though the heart was very toxic, there were no serious cardiac symptoms. November 19, a bilateral resection was done; it was well borne; the wound was left open. November 21, the skin wound was closed. November 26, the patient went home.

Those patients whose operations are to be postponed indefinitely for actual anatomic injury to the circulatory apparatus have what is termed by Dr. Grant, our cardiologist, "congestive heart failure." There is fibrilla-

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Cheever, D.: Are There Reliable Criteria of Operability in Goiter? Arch. Surg. **2**: 21 (Jan.) 1920.

2. Tinker, M. B.: Desperate Risk Goiter in Relation to Operation and Anesthesia, Am. J. Surg. (anesthesia supp.) **38**: 54-58 (April) 1924.

3. Dinsmore, R. S.: Care of the Handicapped Goiter Patient, Surg. Gynec. Obst. **42**: 177 (Feb.) 1926.

4. De Quervain, F.: Goiter, New York, William Wood & Co., 1924.

5. Sise, L. F.: Aids in Predicting the Degree of Postoperative Thyroid Reaction, Surg. Gynec. Obst. **41**: 57 (July) 1925.

tion with extreme diastolic shading. Such patients get 48 cc. of the standard tincture of digitalis in eight days—certainly a massive dose. Operation is postponed until cardiac repair is complete.

A patient of this class is Mrs. L., aged 31, admitted for the first time, Feb. 21, 1924. The basal rate was 43.5 per cent plus; the systolic blood pressure was 140; diastolic, from 80 to 60, and the pulse, 120. The heart was markedly enlarged, with irregular action, fibrillating at times, and a systolic murmur at the apex at all times. March 12, the basal rate was 53.3 per cent plus. March 13, a single ligation was done; it was well borne. March 18, a second ligation was done. March 19, roentgen-ray therapy was begun, with three exposures. March 30, the patient was sent home to return at a later date. She was admitted for the second time, June 21. The basal rate was 56.2 per cent plus; the systolic blood pressure was 140; diastolic, from 80 to 60; pulse, 120. The heart was the same as previously noted; there were edema of the lower extremities and ascites. Paracentesis for the ascites was done two different times. July 3, the first of five exposures of roentgen-ray therapy was given. July 5, 10 cc. of boiling procaine was injected into the right side; July 10, the same amount was injected into the left side. July 17, the patient went home.

She was admitted for the third time, Jan. 22, 1925. The basal rate was 55 per cent plus; the systolic blood pressure was 145; diastolic, from 80 to 70; pulse, 120. The heart was enlarged to the right and left; the rhythm was regular; there was a systolic murmur in the pulmonic area, and auricular fibrillation. There was edema of the feet and ankles, with slight pitting. February 7, a primary lobectomy was done. March 21, a secondary lobectomy was done. May 10, the patient went home greatly improved.

The patients with heart disease considered permanently unsuited for operation merit no more than passing mention here. They belong to the class generally termed "burned out." (It may be stated that we do not understand the meaning of diastolic shading, but regard it as pathologic from the fact that it has disappeared by the time one of these patients is fully restored to health.)

Five classes of patients appear particularly unsuited to thyroidectomy: the fulminating; the adolescent; the insane; those with epilepsy, and pregnant women.

The fulminating type finds its parallel in any other field of surgery.

The adolescent patient has been described by Dinsmore.[6]

An illuminating example is furnished by Miss G., aged 17, admitted for the first time, Aug. 14, 1923. The basal rate was 80 per cent plus; the pulse, 140. She was extremely toxic and was vomiting. August 29, there was marked improvement, with no vomiting. Ligation was recommended. September 3, the patient slipped back; the pulse was from 150 to 160; she was vomiting; the nasal tube was used for feedings thereafter for ten days; she was unconscious. October 4, the systolic blood pressure was 150; diastolic, 80; the patient was taken to the operating room; she became excited and was returned to her room. October 15 and 16, double ligations were done; later, roentgen-ray therapy was begun. October 25, the patient was sent home, to return in three months; she weighed 65 pounds (29.5 Kg.).

She was admitted to the hospital for the second time, March 6, 1924. The basal rate was 50 per cent plus; the systolic blood pressure was 145; diastolic, from 70 to 55; she weighed 130 pounds (59 Kg.). March 11, a right lobectomy was done. March 27, a left lobectomy was done, with uneventful recovery. April 11, the patient left the hospital.

Patients with psychoses are particularly unsuited to operation until the most marked improvement has become manifest.

Epileptic patients may furnish the most tragic surprises, as I know from a recent personal experience.

Pregnant women always furnish food for thought in this connection. It may prove fatal either to empty the uterus or to do a thyroidectomy on a woman who, owing to thyrotoxicosis, is obviously unsuited to the task of completing a pregnancy.

A case in point is that of Mrs. F., aged 30, admitted March 18, 1926. The basal rate was 45.1 per cent plus; the systolic blood pressure was 135; diastolic, 75. She was four months pregnant; the heart sounds were of good quality; there was a faint systolic murmur at the apex; the rate was fast. April 1, a subtotal thyroidectomy was done; it was well borne. April 3, some vaginal bleeding occurred; there were no pains; the pulse was 100 and of poor quality. The morning of April 4, the condition was much improved; the pulse was 150; the general appearance and color were improved; 500 cc. of glucose was given intravenously. At 1 p. m., the patient miscarried; there was no pain and very little bleeding; the placenta could not be expelled; the patient was excited; the pulse had gone up to 180. At 3 p. m., the pulse was 200; the patient was weak, with labored respiration. At 7:10 p. m., there was no hemorrhage; the patient died.

PREPARATION OF THE PATIENT

Wilson,[7] after a study of more than 20,000 resected goiters, defines exophthalmic goiter as "a constitutional disease probably due to the delivery to the tissues by an enlarged thyroid of an excessive amount of secretion which later becomes abnormal in composition." The definition of this disease complex has been so generally accepted that it seems logical to build up a system of preoperative care which conforms to it in every detail.

One attacks the problem from four different angles, correcting the thyroid secretion, decreasing thyroid activity, restoring circulatory restitution and aiding neuropsychic improvement.

Thyroid secretion is, of course, corrected by the use of compound solution of iodine (Lugol's solution), concerning which Pemberton, Lahey and Dinsmore have taught us so much based on the histologic work of Wilson[7] and Mason,[8] showing how a hyperplastic gland quickly goes over into the colloid resting stage after use of the drug.

The decrease of thyroid activity is favored by rest, diet and all the other commonly accepted procedures. At the same time the nutritional balance is automatically restored.

Circulatory restitution has been treated of above; hence it needs no further mention here.

Neuropsychic improvement is favored by the social adjustment which isolates a patient in the hospital and removes her from all sources of worry and strain—the conclusion is obvious in the case of a woman whose husband was addicted to beating her at home. The inactivity treatment of Kessel and Hyman,[9] with fifty patients at Mount Sinai Hospital, further emphasizes this point. Nothing was done but feed and rest the patients, improvement being noted in every case.

The personal influence of the physician, as opposed to the long use of sedatives, must be mentioned. These are certain, in the course of time, to interfere with appetite, digestion and nutrition.

Furthermore, information regarding the disease, especially its tendency to remission, is of value to a patient who lies in bed, week after week, anticipating the unknown. Reports on progress, substantiated by

6. Dinsmore, R. S.: Hyperthyroidism in Children, Surg. Gynec. Obst. 42: 172 (Feb.) 1926.

7. Wilson, L. B., in Bartlett: Surgical Treatment of Goiter, St. Louis, C. V. Mosby Company, 1926.

8. Mason, J. T.: Tr. South. Surg. A., 1925.

9. Kessel, Leo; and Hyman, H. T.: Spontaneous Course of Exophthalmic Goiter, Arch. Surg. 8: 149-164 (Jan.) 1924.

records, do much to stabilize these sensitive patients. In other words, it is well to "lay one's cards on the table" and take an intelligent patient into the confidence of her medical advisers. A due consideration of minimizing a patient's expense, whenever possible, has much that is of value in it. This refers, of course, to price of hospital quarters, employment of special nurses and that sort of thing.

Preparation of a patient may be divided into indirect general measures, direct local measures, and indirect local measures.

The indirect general measures contemplate, at the present time in most goiter clinics, one hospital sojourn, sufficiently long that a patient, toward the end of it, may have a subtotal thyroidectomy as the one and only operative procedure.

A case that will give an idea of the length of time such a patient may be kept contented and willing to await our decision as to her operability is that of Mrs. C., aged 43, admitted Jan. 26, 1926. January 30, the basal rate was 77.2 per cent plus; the systolic blood pressure was 140; diastolic, from 70 to 50. The patient was at the crest of her toxic cycle and was not ready for operation; the heart rhythm was regular, but rapid. March 3, the basal metabolic rate was 52 per cent plus. April 5, the patient was slightly improved, but not ready for operation. April 15, she was still in the hospital.

The direct local measures, such as irradiation, injections and ligations, are now reserved for the obstinate type of patient who will not improve sufficiently for operation under the plan just outlined.

A case in point is that of Miss D., aged 30, admitted for the first time, August 22, 1925. The basal rate was 70 per cent plus; the systolic blood pressure was 145; diastolic, from 75 to 73; pulse, 120. The heart was enlarged downward and outward with a murmur at the apex; the rhythm was good. August 27, a single ligation was done; it was well borne. September 1, a second ligation was done, which was also well borne. September 5, the patient went home to return later.

She was admitted for the second time, October 29. The basal rate was 69.4 per cent plus; the systolic blood pressure was 155; diastolic, from 75 to 65; pulse, 110. The heart was definitely enlarged; the patient needed a period of rest and compound solution of iodine. November 12, she was sent to the isolation hospital for scarlet fever.

She was admitted for the third time, Jan. 23, 1926, with a basal rate of 73 per cent plus; the systolic blood pressure was 130; diastolic, from 65 to 60; pulse, 112. The heart was not in a good enough condition for operation; the patient needed rest. February 26, one tooth was extracted because of a root abscess. March 24, the basal rate was 77.5 per cent plus; the condition was still the same. The patient is hopeful and cooperating.

When neither the indirect general or the direct local mesures avail, one may in certain instances accomplish something by indirect local measures which influence the thyroid by the obliteration of septic foci in teeth, tonsils, sinuses, prostate or elsewhere, although such a plan of action should be, if possible, deferred until after the thyroidectomy, since it is generally admitted that a patient's resistance is lowered by every such minor procedure that it is possible to avoid.

THE IMPOSSIBLE PATIENT

There are certain persons who simply cannot be restored to a condition in which thyroidectomy seems advisable. We have divided them into four classes: those who die of thyrotoxicosis; those who are dismissed as hopeless; those who are intolerant of restraint, and those who die of intercurrent diseases.

The first class are not saved from death by compound solution of iodine, roentgen-ray treatment injections and ligations.

An example of this type is found in the case of a man, aged 37, admitted for the first time, May 26, 1924, with a basal rate of 94.6 per cent plus; the systolic blood pressure was 135; diastolic, 60. Three weeks previously, at another hospital, the basal rate was said to have been 18 per cent plus. The patient was now extremely toxic, but his control was good; the pulse was 140. June 3, single ligation was done. At 5 p. m. the same day the pulse was 180; the systolic blood pressure was 150; diastolic, 75; the patient was toxic; the outlook was guarded. June 4, the blood pressure was 160 systolic; 80 diastolic; he was irrational; pulse was 160. June 11, he was delirious, but was taking nourishment; the blood pressure was 140 systolic; 70 diastolic. June 22, compound solution of iodine was given in large doses. June 23, a second ligation was done, and was well borne. June 30, the patient could sit up in a chair; he left the hospital.

He was admitted for the second time, July 31, 1924. The blood pressure was 152 systolic; 60 diastolic; the pulse, 100. August 1, hot water injection was made in both sides; there was no reaction.

He was admitted for the third time, August 16. The next day he died of thyroditis and thyrotoxicosis, having taken compound solution of iodine for ten days.

We dismiss some patients as hopeless when the morale is seen to be disintegrating after long fruitless stay in the hospital.

This is exemplified by the case of B, a man, aged 43, admitted Dec. 2, 1925, with a basal rate of 80.5 per cent plus. The heart was enlarged, with very irregular rhythm and auricular fibrillation. December 10, there was some improvement. December 11, the blood pressure was 124 systolic; 70 diastolic. The patient was taken to the operating room and a straight incision was made, down to the gland, but the condition was too poor to continue; the operation was stopped, and the patient was returned to his room. December 12, the condition was fair; the patient coughed considerably. December 22, a transfusion of 500 cc. of blood was done; following this, he had a severe reaction; the heart was rapid and fibrillating. December 25, the patient felt good; his pulse was rapid. Jan. 16, 1926, he got up without permission. The next day, he was greatly disturbed from being up. January 29, 10 cc. of boiling procaine was injected into the left side of the neck. February 5, a second injection of procaine was made on the opposite side. February 7, the condition was unchanged; the patient had lost considerable weight and was in no shape to stand operation; he was sent home.

There are, of course, relatively few such patients, but as one of our interns facetiously expressed it, "it is perhaps better to let them do their own dying."

A very few patients are so intolerant of restraint that they cannot be kept in any one hospital or under the care of any one physician long enough to become adequately prepared for the removal of thyroid tissue.

An example of this was Mrs. B., aged 32, admitted, Feb. 15, 1926, with a basal rate of 52 per cent plus. February 17, the heart was slightly enlarged, with a blowing systolic murmur; the pulse was 120. February 20, the pulse rate was slowing down. The patient was improving, and left the hospital against advice, March 2.

Intercurrent disease is not uncommon when a patient is so depleted as to need prolonged preparation. Our experience has been particularly sad with pneumonia, scarlet fever, measles, postnasal infection and parotid abscess.

READY FOR OPERATION

In our clinic, six criteria determine the patient's fitness for operation. They refer to heart condition; blood nitrogen; metabolic rate; patient's weight; self-control, and blood pressure.

As far as the heart is concerned, there may be transient fibrillation, but there must be no organic congestion and the rate must not be too fast, while the electrocardiogram should conform to ordinary standards.

We feel that, as far as blood nitrogen is concerned, it must be under 50, but are better satisfied if it is considerably lower than this.

The metabolic rate should be somewhere about 40 plus, although a falling rate of 50 plus is much more desirable than a rising rate of 40 plus. In other words, the rate may mean different things in different patients. I long ago learned from Dr. Andrews, in charge of this work in our clinic, that a sort of sixth sense teaches the one who determines the rate a great many things of value besides the actual percentage reading.

As to regain of weight, we feel that it should be at least 50 per cent of what the patient has lost in order for conditions to be ideal in this particular.

The regain of self-control is exemplified in many ways, the best of which, it seems to me, is a spirit of cooperation. It is a favorable sign for a patient to urge the operator to continue postponement of the operation as long as his judgment dictates; whereas, on the other hand, the patient who urges him on all occasions to operate is likely to be a victim of a severe postoperative explosion.

The impossibiity of determining this point at times before operation is shown in the case of Mrs. B, aged 39, admitted for the first time, Nov. 2, 1925, with a basal rate of 98.8 per cent plus; the blood pressure was: systolic, 142; diastolic, from 70 to 60. The heart was enlarged to percussion, with a systolic murmur in the pulmonic area; the rhythm was regular, with a rate of 100. November 9, a single ligation was well borne. November 12, another single ligation was well borne. November 16, the patient was sent home.

She was admitted for the second time, Feb. 10, 1926. The basal rate was 55 per cent plus; the blood pressure was: systolic, 145; diastolic, 75. March 2, the basal rate was 50 per cent plus; the pulse, 122. March 7, the patient was taken to the operating room. She had no self-control, even with sedatives, and was returned to her room.

The blood pressure, in order to be satisfactory, should be fairly high, with a wide pulse pressure even though there is some shading. I should suggest 140/65-55 as being somewhere about the average. Of course these figures, like all those that have gone before, are merely approximately applicable to the given patient.

WHEN TO COOPERATE

Walton [10] makes the interesting observation that the mortality is higher in seasons characterized by the highest temperatures, though I am not sure that this can be confirmed in St. Louis, where it is certainly oppressive at certain seasons.

In general, we are guided by four considerations. The first of them is never to consider any thyroid operation as an emergency procedure, a dictum for which I am indebted to Hertzler.[11] The second is that the surgeon had better, if possible, await the patient's maximum improvement. A third factor of safety seems to lie in the date of operation being chosen by some one other than the operator, who may be influenced by any number of considerations of a practical nature, in addition to his direct accountability to his impatient patient and family. Lahey's [12] suggestion regarding the value of organized surgery to the bad surgical risk has surely a profound meaning in the field under discussion. To put this on a practical basis, the date of operation is chosen with us by the agreement of three men—a clinician, who is responsible for the preparation in general; a second, who makes the metabolic rate studies; a third, who studies the circulatory system and does the electrocardiographic work. I must say in passing that any deviation on the operator's part from their general agreement has almost invariably been marked by unpleasant surprises.

For the fourth consideration involved in deciding when to operate, I am taking up a class of patients who constitute our real problem and among whom I am certain we find our mortality highest. These have improved to a certain point and are stationary though not satisfactory for operation. There is adequate circulatory recompensation, although the heart is still irritable. There is self-control at times; the weight regained is not more than half of the 50 per cent that is desirable; the metabolic rate varies between plus 55 and plus 75. What are we going to do with these patients in view of the teaching of Else and Ervine that deaths, or severe reactions, following operation are for the most part due to avoidable errors? One is inclined now and then, against one's better judgment, to "take a chance" when realizing that such patients cannot be kept on hand indefinitely or be safely returned to the maladjusted social existence.

Increased experience opens new avenues of approach to this important phase of the goiter problem. A low operative mortality can result only from adequate preparation and a correct choice of patients. These two considerations, if any, justify the treatment of goiter as a specialty much as the treatment of central nervous lesions has become a recognized specialty in surgery.

10. Walton, A. J.: The Effect of Heat upon Operations for Exophthalmic Goiter, Brit. M. J. 1: 1043 (June 23) 1923.
11. Hertzler, A. E.: Diseases of the Thyroid Gland, St. Louis, C. V. Mosby Company, 1922.
12. Lahey, F. H.: Value of Organized Surgery to Poor Surgical Risk, J. A. M. A. 85: 886-888 (Sept. 19) 1925.

SUBSTERNAL GOITER*

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Substernal goiter is a condition that is readily overlooked and often not recognized until a distinctly serious situation has arisen. It is not discussed extensively in the literature, and except in clinics where thyroids are dealt with in numbers it is often not looked for except when producing unmistakable pressure symptoms.

From our experience with this condition, it is one that readily lends itself to prevention, by occasional examinations to determine the progressive descent of a goiter and by early removal of those goiters tending to descend into the thorax. I have repeatedly stated and written and I urge again that progressive descent of a goiter or the location of adenomas or cysts of the thyroid where they may, or tend to, enter the mediastinum should be an outstanding indication for their surgical removal.

Goiters that have entered the mediastinum and have deviated and flattened the trachea have done so, as a rule, only after their presence as goiters has been obvious for a good many years.

While these goiters may be removed successfully in a great majority of cases, nevertheless, I know from experience with a large number of such cases that they are dangerous states, and that their removal is often accomplished only with difficulty and danger, and that there is a definite lack of comprehension of the fact that any tendency of adenomatous or cystic goiters to become substernal or, even earlier, subclavicular, is a very clear-cut indication for their surgical removal.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

The types of goiter that most commonly become intrathoracic or substernal are the adenomatous goiters. Cysts also become substernal as do colloid goiters, but both conditions much less commonly become substernal, in my experience, than do adenomatous goiters.

I have several times described and illustrated the mechanism of the descent of thyroid tumors into the mediastinum, and will here only take time to say that they tend naturally, if located in the lower pole of the thyroid, to pass downward unopposed through the upper thoracic aperture, guided by the overlying prethyroid muscles and aided by their frequent ascent and descent with swallowing.

The unfavorable effects of intrathoracic or substernal goiter have been largely those concerned with diminution in the size of the trachea by deviation, denting and collapse of that structure.

Since most of the substernal goiters are adenomatous and since the trachea stands out anterior to the esophagus as a moderately firm pipe, the quite consistent tendency of adenomas entering the mediastinum is to pass or topple to one side of this semirigid structure and therefore to deviate and flatten the trachea laterally. In a few instances, however, large substernal goiters—particularly those which are both external and also deeply substernal—may collapse the trachea anteroposteriorly, especially at the level of the upper thoracic aperture, the diameter of which is too small to admit both structures, the more resilient one (the trachea) yielding.

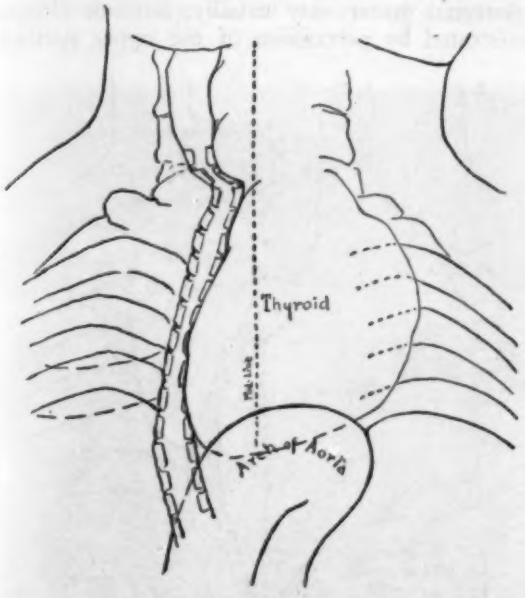

Fig. 1.—A deeply located intrathoracic goiter with deviation and narrowing of the trachea and angulation at the upper portion due to a retrotracheal portion of the tumor. Figures 1 to 6 are tracings from roentgenograms.

I have seen all degrees of tracheal narrowing, from slight deviation and denting up to extensive deviation, flattening and complete collapse (figs. 1-6). Substernal goiter rarely exists, I believe, without eventually producing a deformity of the trachea, in either its course or its contour. Unfortunately, also, these deformities resulting in respiratory difficulties often do not evidence themselves until patients are well along in years and ill equipped to endure the serious ordeal of their removal.

One must bear in mind also that not only do goiters become substernal, but adenomas substernally located also become toxic, a complication that definitely increases the mortality rate in the removal of deep lying goiters difficult of extraction.

These factors plus the additional possibility of malignant degeneration of substernally located adenomas should leave little question in the mind of any one as to the advisability of early removal.

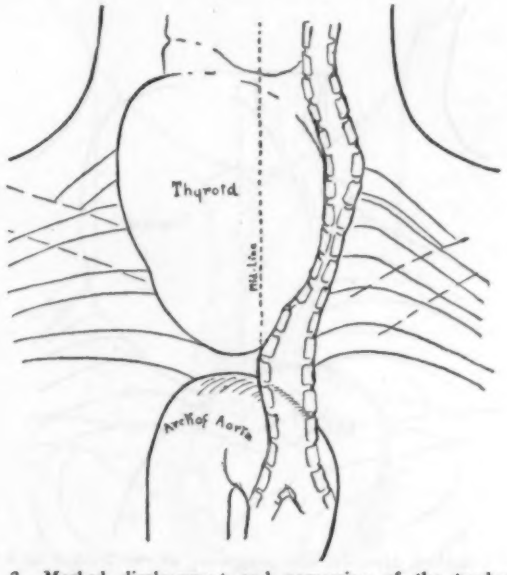

Fig. 2.—Marked displacement and narrowing of the trachea by a partly intrathoracic goiter.

The basic factor in the diagnosis of intrathoracic goiter is the palpation of the lower poles of the thyroid. If both lower poles of the thyroid may be felt to pass beneath the palpating finger as the gland ascends and descends on swallowing, then, excepting the rare substernal goiter due to aberrant thyroid tissue, substernal or intrathoracic goiter does not exist. If, however, one or both lower poles cannot be demonstrated, substernal goiter is to be seriously suspected and measures taken to demonstrate its presence or absence.

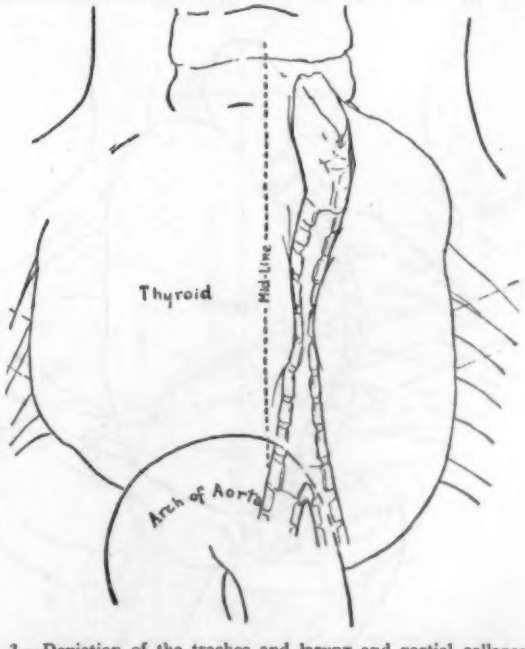

Fig. 3.—Deviation of the trachea and larynx and partial collapse from bilateral pressure in an enormous goiter extending very deeply into the chest.

In roentgenograms of patients suspected of possessing intrathoracic goiter, while the shadows of their outlines may usually be clearly demonstrated, it is not nearly as striking as marking out the extent and limits of the substernal mass as is the character of the tracheal dis-

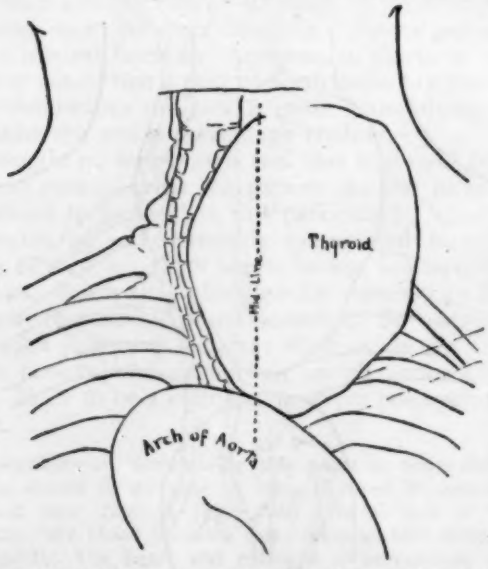

Fig. 4.—Marked deviation and narrowing of the trachea in a partly intrathoracic goiter.

placement which it occasions. When, however, the trachea is not deviated but is flattened from before backward, as is rare in my experience, then of course this helpful factor cannot be made use of.

Since substernal goiters most frequently arise from the substernal prolongation of adenomatous masses arising in one lobe of the thyroid, deviation of the

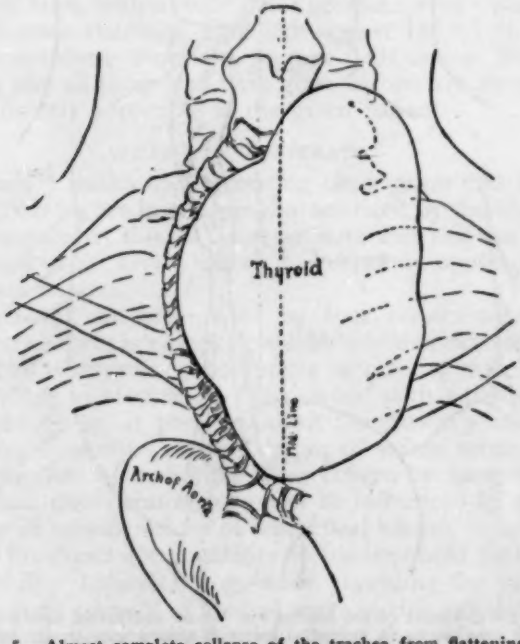

Fig. 5.—Almost complete collapse of the trachea from flattening; little deviation of the thyroid cartilage.

trachea and particularly the larynx, as demonstrated by palpation, are quite reliable indications of the existence of the extensions of thyroid tissue into the mediastinum. Goiters that remain wholly on the neck tend to be displaced laterally without deviating the larynx, while those which have extended into the thorax, because of the bony limits of the upper thoracic aperture, cannot be displaced laterally, with the result that the trachea, although of semirigid structure, yields, moves outward, and bends over the curved outline of the intrathoracic mass in its downward course, and in the course of its outward movement, to a lesser degree, carries the laryngeal cartilage with it.

In such cases, if a line is imagined as extending from the median cleft of the chin to the center of the sternal notch and the position of the notch on the thyroid cartilage noted, when deviation exists, this will be found to be well out to either side of this imaginary line.

Deviation of the trachea secondary to substernal goiter with flattening and narrowing of the trachea rarely fails to evidence the effect of diminished tracheal caliber by an audibly increased respiratory noise, particularly after exertion This is best brought out by asking a patient to ascend and descend a flight of stairs once or twice hurriedly

Substernal goiter may usually, but not always, be demonstrated by percussion of the upper part of the

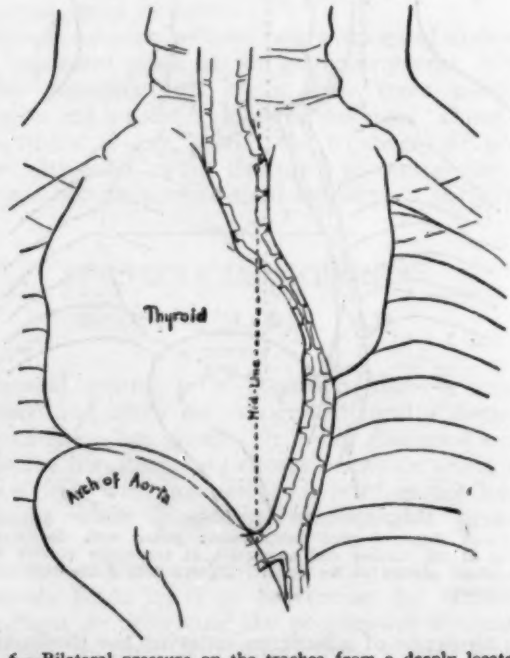

Fig. 6.—Bilateral pressure on the trachea from a deeply located intrathoracic goiter on one side and a less deeply located one on the other side.

chest. Small and deep prolongations into the mediastinum, particularly those which pass behind and wrap themselves around the trachea, frequently cannot be demonstrated by percussion.

Dilatation of the superficial thoracic veins over the upper chest accompanies substernal goiter with fair constancy, when the size of the mass projecting into the mediastinum is great enough to interfere with the venous drainage of the goiter either by pressure on the veins coming from it, such as the inferior and middle thyroid veins, or when its bulk is sufficiently great to fill the upper thoracic aperture in such a way that pressure on the internal jugular veins occurs.

All degrees of venous dilatation appear, from the faint blue tracings beneath the skin, just over the upper chest wall, up to the tortuous dilatations extending from the upper chest well down over the abdominal wall (fig. 7).

In obtaining the history of patients with substernal or intrathoracic goiter, a feeling of substernal pressure is often complained of. Choking attacks are frequently described by patients with this condition, the result perhaps of rather sudden increase in size of the substernal mass due to some temporary interference with its venous drainage. This results in an edema and so great an enlargement of the mass that the upper thoracic aperture barely admits it, and, enlarging further, it collapses an already narrowed trachea. These choking attacks of relatively short duration in patients, in contradistinction to the persistent and progressive obstruction, which I have repeatedly seen in patients with substernal goiter, unfortunately have not occurred in my presence, but have repeatedly been described by patients. This description in each case has been quite typical, often stated by the patient as almost choking to death.

It is quite probable, I have considered, that these attacks may be due to accumulations of bronchial mucus lodging at a narrowed point in the trachea, producing respiratory obstruction, relief from which is finally accomplished by the violent efforts of coughing and strangling.

Fig. 7.—An intrathoracic goiter showing dilatation of the neck veins and the superficial thoracic and epigastric veins.

A very striking and interesting point in the history of patients with substernal or intrathoracic goiter is the history of difficulty in breathing when the head is canted to one side, as it is by the patient sleeping on his side with a high pillow. Many patients with this condition have made this observation and volunteered such information in the history, frequently stating that they are able to sleep well on one side, but that if they turn on the other side difficulty in breathing is immediately experienced

Since substernal or intrathoracic goiters are more or less spherical, then, as has already been stated, the trachea will be found to pass to one side and curve over the body of this mass. If now the head is canted sharply toward the shoulder of the side on which the substernal mass is, the trachea will be more tightly pressed against the substernal mass, which is held fixed by the bony limits of the upper chest wall and the superior thoracic strait. With the head canted into this position, further collapse of the trachea results, just as one might bring about collapse of a firm rubber tubing by firm traction on both ends while held over a large spherical object such as an apple or a potato (figs. 8 and 9).

If this observation has been reported in the literature, I am not familiar with it, and when present, I believe that this point in the history is of marked value in the

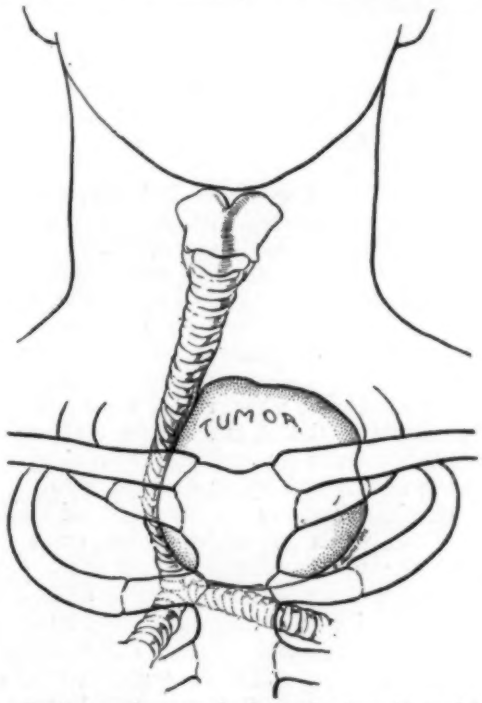

Fig. 8.—Trachea curving around substernal goiter with head in upright position and trachea uncollapsed.

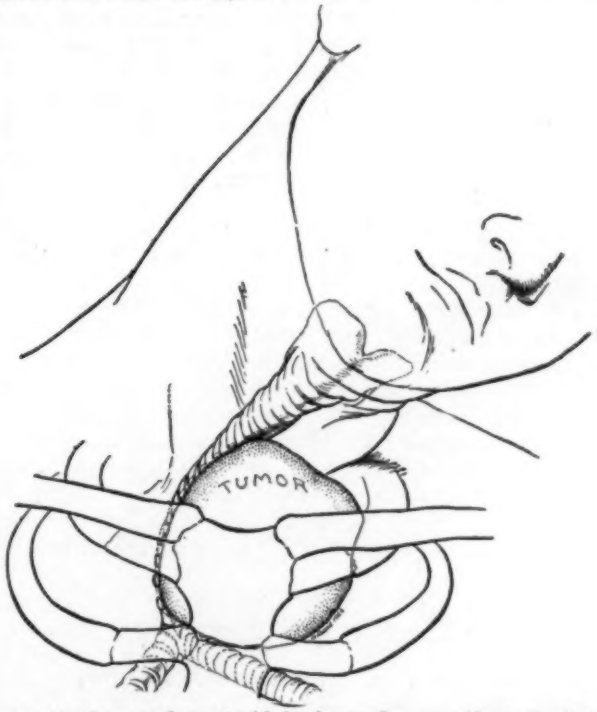

Fig. 9.—Same as figure 8 with head curved to one side, as in sleeping on high pillow, and collapse of trachea due to pressure against substernal mass.

diagnosis of substernal goiter, particularly when such a goiter exists entirely within the chest, with no goiter on the neck to attract the examiner's attention.

The operative removal of substernal goiter is often exceedingly simple, particularly when the mass has

passed only partly into the mediastinum and for but a short distance behind the sternum. When, however, it has become deeply located within the chest, adherent to the pleura, and prolongations from the intrathoracic portion have wrapped themselves round the trachea or have embedded themselves in the pleura so that the so-called hooded goiter has resulted, when the increase in size of the portion within the thorax has become so great that its diameters are actually greater than the diameters of the aperture through which it must pass, then it becomes a difficult and a dangerous procedure, taxing the skill and resources of the most experienced thyroid operators.

In an experience of well over 200 substernal goiters, I have succeeded in accomplishing their removal without removal of the manubrium in all except two cases. It is possible that in two or three of those cases in which tremendous intrathoracic goiters have been combined with intense thyroid intoxication, I might have done better had I removed the manubrium of the sternum as a first step in the procedure and a few days later extricated the intrathoracic mass, rather than subject these frail individuals to the shock, trauma and respiratory obstruction attendant on pulling such a large mass through the unenlarged upper thoracic strait.

The technical features of removal of substernal goiters are the prevention of hemorrhage and the protection of the pleura, thoracic duct, and recurrent laryngeal nerve, three structures which form the walls from which the intrachoracic mass must be separated, the prevention of tracheal collapse, and insufficient air intake during removal and the extrication of the mass.

Since this is not intended as a technical paper, it will suffice to state that these steps may all be accomplished by gentle manipulations in the proper lines of cleavage and with the cooperation of an anesthetist experienced in the methods of aiding these patients in getting air during the time tracheal pressure is being made during the manipulative removal of the mass. This has been accomplished by a tight mask and the introduction of oxygen into the lungs by pressure.

CONCLUSIONS

Any tendency for a goiter to become substernal is an indication for its removal.

The ill effects of substernal goiter are primarily deviation, flattening, and narrowing of the trachea.

The diagnosis by means of roentgen-ray and physical examination may be made with considerable certainty.

Surgical removal may be accomplished in a great majority of cases even when the substernal mass has passed downward behind the arch of the aorta, but an operative procedure of this magnitude would be unnecessary if the early adenomas and cysts were removed while still only tending to become intrathoracic.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BARTLETT AND LAHEY

DR. A. BENNETT COOKE, Los Angeles: One point in Dr. Lahey's paper I think should be particularly emphasized: He calls attention to the danger of neglecting adenomatous goiter. When the diagnosis of adenomatous goiter is made, it means, always, for the patient's interest, surgery. That one point we should bear in mind. With reference to the substernal development of goiter: I believe there is an anatomic or a mechanical factor that determines the substernal growth, and that is the extent of attachment of the sternomastoid and the degree of development of that muscle. I am quite sure that there must be some reason why an adenoma occurring in the lower lobe of the thyroid in some cases presents itself laterally or mesially on the surface of the neck and in other cases penetrates into the substernal area. It seems to me that the obvious and most plausible reason for this is the variation in the anatomic development of the sternomastoid muscles. Of course, the chief danger in the surgery of intrathoracic goiter is collapse of the trachea on the operating table. This is the great tragedy of goiter surgery. I have had it happen twice: the first time about twelve years ago, when the patient succumbed because I did not know what to do. The second case occurred more recently. A rapid tracheotomy saved the patient's life. With reference to Dr. Bartlett's paper, I am glad he made clear that he was dealing exclusively with exophthalmic goiter, because in my own experience there are no contraindications to surgery in the adenomatous toxic goiter. I believe we may say as a broad, general rule that the adenomatous goiter, even though toxic, is a case that is suitable for thyroidectomy. I am impressed with the importance of differentiating the hyperthyroidism of toxic adenoma from the hyperthyroidism of the hyperplastic or exophthalmic goiter. Ordinarily we think it is quite an easy matter to determine whether an adenoma is present or whether it is a true exophthalmic goiter. But there should be some way in those borderline cases in which the differential diagnosis is a matter of considerable doubt for us to make a definite diagnosis as to which type of case it is, because in exophthalmic goiter we can give the compound solution of iodine and quickly prepare the majority of these cases for surgery, whereas in the adenomatous case, the use of this solution is always detrimental.

DR. ARTHUR E. HERTZLER, Halstead, Kan.: The essential factor in the removal of substernal goiter is to depend on traction from above, with gradual separation with the knife handle exactly in the line of cleavage. It is only by sight that this plane can be followed. It cannot be done when enucleation with the finger is attempted. When working with local anesthesia, the patient may be instructed to cough. This may expel the goiter from the thorax with a single effort. In estimating the value of loss of weight as a factor in operative risk, one must distinguish between a patient who is losing weight and one who has lost weight. The former is not operable, while the latter may be a perfectly good risk.

DR. DAVID C. STRAUS, Chicago: I am sure that if we limited our operative procedures to the cases Dr. Bartlett has pointed out, our mortality would be very low, but I think we would be withholding from many patients an opportunity of regaining their health. The decision as to whether or not a given exophthalmic goiter patient should be submitted to surgical methods or not cannot be based on a consideration of any one phase alone. It should be based on a consideration of all clinical and laboratory facts together. In other words, it is difficult, as Dr. Bartlett pointed out, arbitrarily to set an upper limit of metabolic rate above which it is unsafe to operate. Within the last year, since there has been such a general use of iodine indiscriminately by general practitioners in an attempt to treat these cases medically, it is much harder for surgeons to prepare for operation patients with exophthalmic goiter who have been given iodine over a considerable period of time. In my experience, the maximum benefit from compound solution of iodine is obtained after it has been administered from seven to ten days, in some cases even for two or three weeks. If it is given for a longer period, the basal metabolic rate gradually rises, even while the iodine is being given. Some general practitioners give these patients iodine week after week, even for months, and as a result surgeons have to accept patients who are unable to be prepared by the administration of this solution as they were up to perhaps a year ago. I am just beginning to give roentgen-ray treatment locally for a period of three months to some of these patients in an effort to prepare them for operation, if they respond to this treatment.

DR. GEORGE W. CRILE, Cleveland: I do not think that there is much to be said in any one clinic as to how another clinic should handle these cases. The important point is to consider the operability of any patient with hyperthyroidism on the evidence he presents as to heart, weight, probability of acidosis, nervous state and all the other pertinent facts, just as in the case of any other patient who does not have hyperthyroidism. It is important not to have a set rule; principles but not rules govern us in the handling of these difficult cases. For instance, it is far better not to say that we will never ligate, we will never do a lobectomy but will always hold the patient until we may perform a complete operation. It is much better to apply to each patient what that patient appears able to stand. There will be cases in which it is far better to perform a preliminary ligation; there are other cases in which after ligating one may safely do a lobectomy, and in some of these cases a lobectomy can be done today, and tomorrow the other lobe can be resected, while in still other cases, after a lobectomy, the experience of the first twenty-four hours will show that we should defer the operation and do a second lobectomy at a later time. Then, again, one may say that ordinarily one will take so many days for the preparation of the patient. It is far better to have no set rule as to the length of time this preliminary preparation is to take but rather to establish the principle that the patient will be operated on when he is prepared and not on any especial date. I think this disease, more perhaps than any other, requires a surgeon to be patient, requires that every one concerned be extremely careful in weighing the evidence, and that finally he act only in accordance with the facts thus indicated.

DR. FRANK H. LAHEY, Boston: I am sure that Dr. Hertzler does not wish to be misunderstood in stating that all intrathoracic goiters are easy of removal. If one sticks to the line of cleavage and pushes back the thoracic duct and pleura, all that is necessary is to get it out; but, unfortunately, some of the intrathoracic goiters are larger than the aperture through which they must pass. In addition to the size of the goiter, one's fingers must also go through the aperture because these goiters must be removed from below. If they are taken out from above and torn, a bleeding mass may be left in the mediastinum, which, becoming infected, produces mediastinitis and death. One of the essential factors in the removal of thoracic goiters is that the surrounding structures first be loosened with the fingers, and then with the fingers inserted below the mass, that is be pried out. I wish to reiterate what I have already said that if we could operate on these goiters before they become deeply intrathoracic the mortality would be practically nil. Regarding the part of Dr. Bartlett's paper dealing with heart injury, I believe that this is one of the most important factors in connection with thyroid disease. I have repeatedly described the thyrocardiac case in which thyroidism, superimposed on a previously injured heart, is the direct cause of decompensation. I have repeatedly stated that this condition has often been overlooked as a result of the fact that the urgency of the decompensation causes the attention to be focused on it, and because of this overshadows the underlying thyroidism. Auricular fibrillation, with absolute cardiac irregularity, plus a rapid rate, can be removed by subtotal thyroidectomy in a great majority of cases; and if this is done, the toxicity which breaks compensation being removed, the cardiac reserve is often sufficient for the patient to conduct his life with moderation and even earn his living. The essential factors in the treatment of toxic goiter are individualization and realization that it is not a one-man job. There are no arbitrary rules as to operability and nonoperability. If we could have all toxic goiters as early as Dr. Bartlett states, we would be very much pleased. We reject practically no cases, and in practically all cases, with the exception of those of cardiac decompensation, operation is done within two weeks after hospitalization.

DR. WILLARD BARTLETT, St. Louis: I heartily agree that individualization is the thing, that every patient is a law unto himself, and that one cannot judge as to what to do by the patient's metabolic rate or any other one thing. All things must be considered. Dr. Lahey gives, unintentionally, a false impression. Dr. Lahey undoubtedly does not reject many patients. I stated that I would take a gambler's chance, but he delays often, because I know what his mortality is, and he does not rush in foolishly and operate on patients who are not ready. I do not want the impression to go out that one can go ahead and operate on all of these people. One cannot. One must postpone for months quite a small number in the last group I mentioned, and some of them one must refuse entirely or the mortality will not be where Dr. Lahey has his. That is the final sum and substance of the thing.

PYELOVENOUS BACK FLOW*

FRANK HINMAN, M.D.
AND
FRANCIS H. REDEWILL, M.D.
SAN FRANCISCO

Pyelovenous back flow is the name that was applied in 1923[1] to the phenomenon of drainage into the venous system from the renal pelvis under certain conditions of back pressure.

In routine injection methods for demonstrating renal circulation,[2] a cast of the renal pelvis is often made to demonstrate the relationship of its outline to the arterial blood supply, and it was a frequent occurrence to have extrapelvic extravasation even with moderate pressures. This had been a frequent observation of others in injection methods. From the experimental side, as early as 1856, Gigon,[3] using potassium iodide and starch, demonstrated the passage of fluid by way of the venous plexus on the surface of the calices from the pelvis in both cadaver and living kidneys. Both Poirier[4] in 1891 and Tuffier[5] in 1894 noted a marked difference of absorption with and without ureteral obstruction. A lethal dose of strychnine in an open renal pelvis was harmless, but death in opisthotonos speedily followed when the dose was placed in a closed one. Adolph Huber,[6] in 1895, in an extensive study of "résorption rénale" in the living dog overlooked a venous communication under the conditions of back pressure.

In a recent experimental study, Bird and Moise[7] failed to confirm in any way our conception of pyelovenous back flow; but in 1925 a Viennese,[8] working independently, injected fifty human cadaver kidneys and confirmed the frequent occurrence of the pyelovenous communication.

The importance of the phenomenon as a factor in many renal conditions at once suggests itself. As a

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* From the Department of Urology and the Hooper Foundation for Medical Research, University of California Medical School.

* Read before the Section on Pathology and Physiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by one of the authors on receipt of a stamped addressed envelop.

1. Hinman, Frank; and Lee-Brown, R. K.: Pyelovenous Back Flow: Its Relation to Pelvic Reabsorption, to Hydronephrosis and to Accidents of Pyelography, J. A. M. A. **82**: 607-613 (Feb. 23) 1924.

2. Hinman, Frank; Morison, D. M., and Lee-Brown, R. K.: Methods of Demonstrating the Circulation in General: As Applied to a Study of the Renal Circulation in Particular, J. A. M. A. **81**: 177-184 (July 21) 1923.

3. Gigon, C.: Recherches sur l'ischurie, L'union méd., 1856, p. 297.

4. Poirier, M.: Compt. rend. Soc. de biol., 1891, p. 585.

5. Tuffier, H.: Etude clinique et experimentale sur l'hydronephrose, Ann d. mal. d. org. génito-urin. **12**: 14-40, 1894.

6. Huber, Adolph: Recherches physiologiques sur la résorption rénale, Thèse, Paris, 1895.

7. Bird, C. E., and Moise, T. S.: Pyelovenous Back Flow, J. A. M. A. **86**: 661-665 (March 6) 1926.

8. Fuchs, Felix: Untersuchungen über die innere Topographie de Niere, Ztschr. f. urol. Chir. **18**: 164-180, 1925.

factor in the mechanism of hydronephrosis, it offers a solution of an otherwise unexplainable condition. One of us and Vecki [9] showed that dye substances left in a closed-off normal pelvis of a living animal completely disappeared within from two to four days, showing that the contents of a hydronephrotic sac are continually renewed and are not of the nature of a stagnant pool. The importance of the phenomenon in

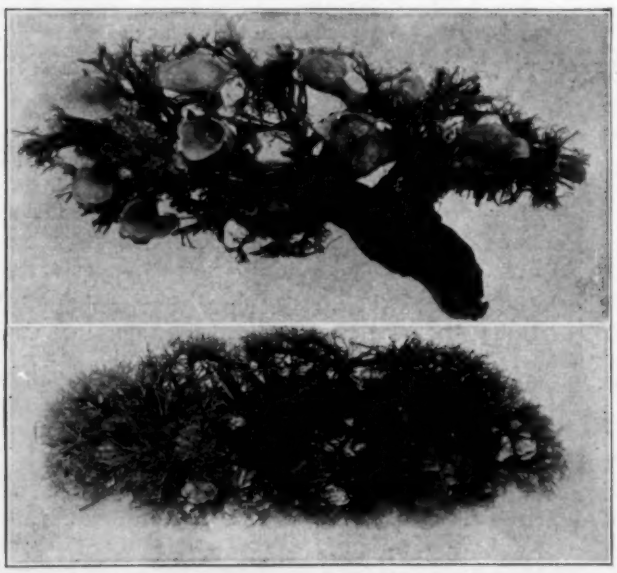

Fig. 2.—Collodion corrosive injection of cow's kidney, arteries, veins and ureter. The calices in the picture below can be seen through the vascular network. In the upper picture considerable of the finer artery and vein injections have been removed in order to present a clearer picture of the lily-like calices. The intimate vascular relationship with the major and minor calices may be noted.

the production of hematuria has been suggested by Fuchs,[8] who has independently observed its occurrence. And, finally, the importance of the phenomenon as a factor in relation to pyelography, both to accidents following the use of toxic substances and to defects of filling of the pyelogram which lead to misinterpretation,[10] is directly clinical.

Most of these questions are still open. Some of the problems can be best studied by trained scientists with fully equipped laboratories. They are technical and are related to many physical, chemical and physiologic problems.

DEMONSTRATION OF OCCURRENCE

The following facts have been experimentally gathered since the previous publication:

The most important anatomic facts relative to pyelovenous back flow have to do with the relationship of the pelvis and its branches to the renal venous system. The veins of the kidney, in marked contrast to the arteries, freely anastomose. Particularly in the zone between the cortex and the medulla are rich venous arcades between the larger interlobar veins, many of which are in very intimate relationship to the finer terminal branches of the minor calices. At some of these terminal pelvic divisions, the veins almost completely encircle the fornix calices. The venulae rectae in the medulla, which are richer, as far as number and size are concerned, as compared to the arteriolae rectae, are also in very close relationship to the collecting tubules as well as Henle's loops, and it is this particular area that must be considered with respect to certain aspects of pyelovenous back flow. With respect to the tubular system and its relation to its blood supply, the definite zones of cortex and medulla are differentiated by reason of the renal tubule itself being confined to the cortex. Henle's loop only penetrates to a deeper level, and it is between these two zones in the corticomedullary portion that the venous arcades exist, into which the radiating interlobular veins drain. Injection of a small venule at one fornix calix or of a small venula recta alongside a collecting duct would readily fill the whole venous system, on account of the free anastomosis, if the injection were more rapid than the venous outflow, as both these points are toward the terminal part of the venous system. Experimentally, these relationships differ in the so-called unipolar kidneys, or those which have one papilla, and the multipolar kidneys, those with several papillae.

EXPERIMENTAL PRODUCTION

There are three methods of production of pyelovenous back flow for consideration with respect to demonstration of its occurrence: (1) by injection methods in cadaver kidneys; (2) by perfusion, and (3) by injection methods intravitally. The injection of the venous system by way of the ureter can be

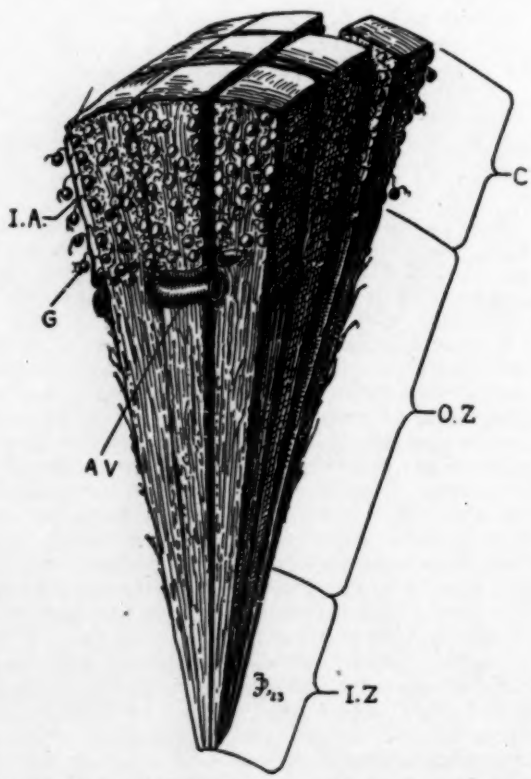

Fig. 3.—Diagrammatic representation of the structural unit of the human kidney (Traut), showing the division into zones, and the area between the cortex and medulla of the marked venous arcades made by the interlobar veins, where the fornices and calices come into close relationship. In cases of direct extravasation, the probable route is between these units.

readily demonstrated in any fresh cadaver kidney by the collodion corrosive method under conditions of moderate back pressure. It may also be beautifully demonstrated by the injection of the ureter with a solution impermeable to the roentgen ray and by taking

9. Hinman, Frank; and Vecki, Morrell: Pyelovenous Back Flow: The Fate of Phenolsulphonphthalein in a Normal Renal Pelvis with the Ureter Tied, J. Urol. **15**: 267-271 (March) 1926.

10. Hinman, Frank: Pyelovenous Back Flow at the Time of Pyelography, to be published.

roentgenograms at varying periods under varying degrees of back pressure.

The following experiment of perfusion strikingly demonstrates pyelovenous back flow:

The kidney must be perfectly fresh and transferred immediately to warm Ringer's solution. The ureter, artery and vein are then each connected to small glass cannulas. Two injection bottles are arranged, one containing 1 per cent iron and ammonium citrate and the other 1 per cent potassium ferrocyanide, each attached to a manometer. One bottle is connected to the cannula in the artery and the other to the cannula in the ureter, and the vein cannula is connected so that it will drain into a vessel below containing 10 per cent hydrochloric acid. Both injection fluid bottles are connected to gravity bottles to supply air pressure. The one connected with the artery is first started and the pressure kept at about 90 mm. of mercury. This will give a free circulation or perfusion of the kidney, and the solution will drain out of the open venous side into the hydrochloric acid without any change in its appearance. Ureteral pressure can now be regulated, and if there is any back flow from the ureter into the venous system it will immediately manifest itself by the precipitation of prussian blue in the hydrochloric acid. The ureteral pressure must be slowly and gradually increased. At about 35 or 40 mm. of mercury, pressure in the ureter, a blue precipitate in the hydrochloric acid first appears. Increasing the ureteral pressure up to 150 or 200 mm. of mercury only somewhat increases the rate of flow. Lowering the pressure to 30 mm. or below causes the blue precipitation to cease. As soon as it is increased to 35 mm. of mercury, the precipitate again reappears, and this can be repeated time and again, the mean at which the blue precipitate appears remaining constant.

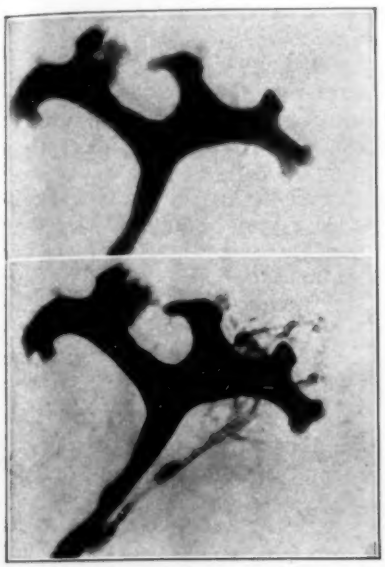

Fig. 6.—Pyelogram of human cadaver kidney. The pelvis is injected with 50 per cent sodium bromide solution. Above, effect of pressure at 30 mm. of mercury; below, effect of pressure at 35 mm. The pyelovenous back flow into the venous radicles with outflow of the media in the veins may be noted.

The use of other solutions will lead to a similar experimental outcome. Ringer's solution perfused at 90 mm. pressure through the artery, and india ink, trypan blue or alum carmine solutions, or even distilled water, milk and sodium bromide will be found at pressures around 35 or 40 mm. of mercury to flow back through the vein on ureteral injection. The pressure required to start this back flow varies somewhat for the different solutions used, but when once established it is more or less constant for each respective solution.

Very similar observations may be made in the living kidney. With the animal anesthetized, solutions impermeable to the roentgen ray may be injected by way of the ureter and permeation into the venous system demonstrated by roentgenography. This back flow at the time of pyelography has been recognized as frequently occurring since Voelcker and Lichtenberg [11] first introduced the procedure. Many severe reactions and even death following the injection into the renal pelvis of the first silver solutions used, especially colloidal silver (collargol), have been reported. It has been the general belief that these reactions have been due to back flow up the collecting tubules and thence into the circulation. Many of these conditions are well shown in the pyelograms, leading to misinterpretation with respect to supposed defects of filling.

11. Voelcker and Lichtenberg: Cystographie und Pyelographie, München. med. Wchnschr., 1906.

PLACE OF OCCURRENCE

The two important portions of the kidney, as emphasized in the foregoing anatomic discussion, in which the penetration of pelvic contents into the venous system most readily occurs are at the acute angle terminations of minor calices, where the pelvic mucosa is in intimate relationship to large venous spaces, or in the collecting ducts, also in intimate relationship to rich venules. The difference in appearance of a tubular back flow and a pyelovenous back flow can be demonstrated. The outline of the arcuate veins is characteristic of the latter. Tubular back flow is seldom seen except in the human and dog kidney. Ordinarily, there is a penetration up the collecting ducts for only a short distance. The distinction is further emphasized by the following experiment:

If the single papilla of a sheep's kidney is thoroughly sealed off by fulguration, it will still be found possible to get a typical pyelovenous back flow, which of course cannot now occur by way of the tubules. In another kidney similarly treated by fulguration so as to seal off completely all the collecting ducts, and in which the arteries and veins have been sealed off with 10 per cent gelatin solution by injection

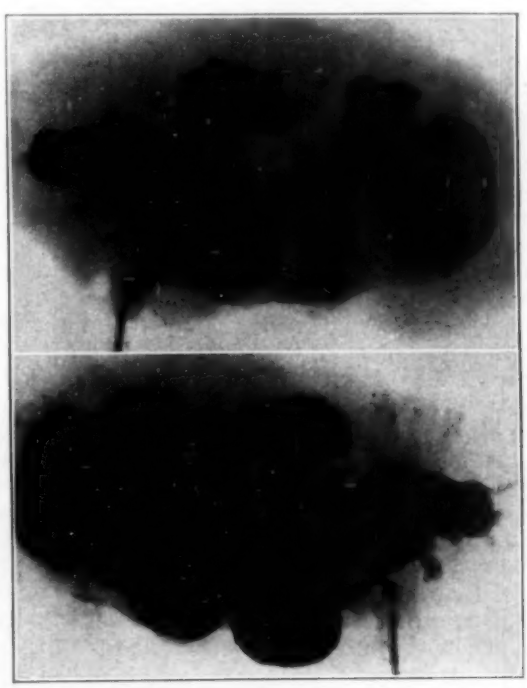

Fig. 8.—Injection of cadaver kidney in case of human tuberculous hydronephrosis, with nephrectomy: Above, injection in pus cavities at 20 mm. mercury pressure; below, injection into pelvis at 40 mm. Pyelovenous backflow beginning at lower pole should be noted.

methods, it will now be found that under ordinary degrees of pressure no back flow of any kind occurs.

MANNER OF OCCURRENCE

There are a number of ways by which the pelvic contents might gain entrance into the venous system. The two most obvious are by direct communication or by way of the tubules, but there are other factors of

importance, such as (1) phagocytosis, (2) osmosis and (3) permeability of the membranes.

Phagocytosis.—Does phagocytosis play a rôle in hydronephrosis? How do phagocytes act with respect to certain types of pyelographic mediums that occasionally may be injected in such sacs caused by partial stricture of the ureter? The precipitated silver chloride in the pelvis of the kidney following silver nitrate injections is carried off by macrophages, as proved by microscopic sections. Also any bacterial infection with pyonephrosis will stimulate macrophage action. The experimental work with phagocytosis is covered by a voluminous literature. Some of the more recent work touching on the subject is that of Evans,[12] in which he describes macrophages as "mononuclear cells wherever they may be lining vascular channels, resident in connective tissue or entirely free where protoplasm constitutes a physical system characterized above all by finely divided particulate matter." The Clarks[13] reported interesting experiments with tails of living tadpoles in which they were able to study macrophages following inflammation of the tissue. Lewis[14] recently has reported work with frogs, toads, snakes and lizards in which she studied the action of macrophages in the living lung tissue following injection of 2 per cent india ink solution into the vascular system. And in another article, the same author[15] attempts to show that macrophages arise from the leukocytes of blood by the actual study of the incubated blood with the hanging drop method.

Fig. 10.—Sheep's kidney showing rupture and extravasation into the parenchyma. Pyelogram, 50 per cent sodium bromide solution. Left, pelvis partly filled at 20 mm. of mercury pressure. Center, pelvis injected, and marked pyelovenous backflow at 40 mm. pressure. Right, at 65 mm., shows marked rupture into the cortex and capsule with general extravasation. Numerous articles in the literature have described this type of clinical accident. This cortical rupture is produced with a sudden application of high pressure. Braasch, over ten years ago, advised using only 30 mm. pressure with manometer in producing pyelograms. It is exceedingly easy with a 20 cc. Luer syringe to produce from 150 to 200 mm. mercury pressure instantly. This is done in clinical practice when possibly something goes wrong with the needle and the physician applies more pressure to force the fluid, when suddenly the obstruction gives way, the medium is shot home into the pelvis at a frightfully high pressure, and the damage to the kidney is done.

In order to determine the phagocytic action that may take place on injection of particulate matter into the renal pelvis of normal animals and those with various stages of hydronephrosis, a 2 per cent solution of india ink, alum carmine and berlin blue was used, and large healthy New Zealand rabbits were selected for the experiment. These experiments are summarized in table 1. The following points will be noted in this new series of experiments: 1. Macrophages act through the pelvic wall to carry off the particulate matter, similar to the modern experiments of Evans, Clark, Lewis, and others. 2. The recesses of the minor calices and poles of the kidneys were the favorite sites for the passage of phagocytes. 3. Macrophages were rarely seen in either the convoluted or the collecting tubules. 4. The particles of carbon, carmine and berlin blue were noticed to agglutinate, especially when in the venules. 5. In forty-eight hour specimens with alum carmine in the hydronephrotic sac, the sagittal sections displayed a uniform studded pigmentation of the entire cut surface of the medulla and cortex, showing a migration of macrophages containing pigment uniformly through the tissues into the venules and large veins of the kidney substance. Some of the scattered pigment might have been due to vascular absorption and renal secretion.

Two important points must be kept in mind in dealing with dyes in a hydronephrotic sac: First, that when the dyes are carried into the blood stream by macrophages, on their return to both kidneys in the arterial blood stream they will be secreted by the glomeruli and absorbed by the convoluted tubules, so that the pigment will be found in the cortex of the normal kidney as well as in the parenchyma of the hydronephrotic kidney. Thus, the studded appearance of the dyes throughout the sectioned renal parenchyma is partly due to the secretory activity of the kidney.

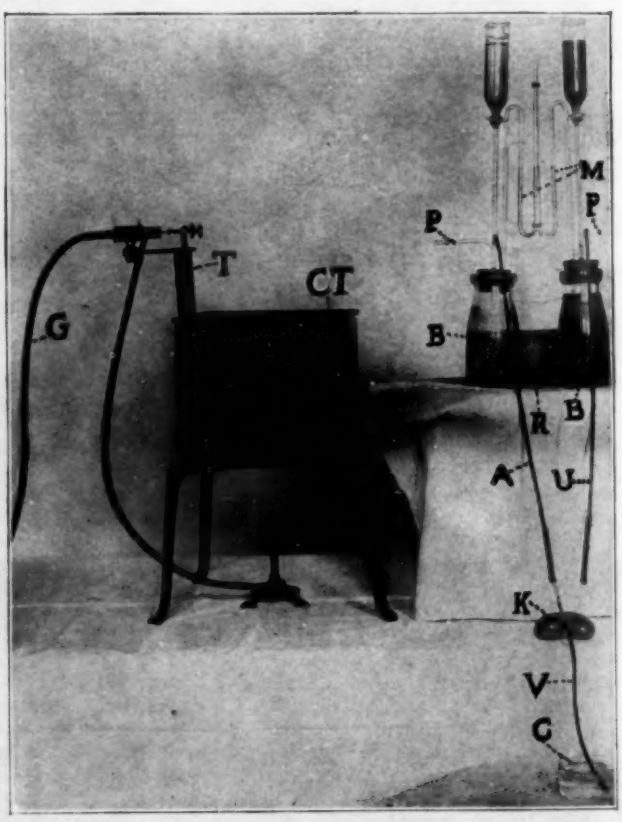

Fig. 11.—Double pressure injecting apparatus: In one series of experiments, left bottle *B* contained 1 per cent potassium ferrocyanide and was connected with renal artery *A* at *K*. Right bottle *B* contained 1 per cent iron ammonium citrate and was connected with ureter *U* at *K*. Below, tube *V* from the renal vein leads to glass container *C* with 10 per cent hydrochloric acid. There is a manometer at *M* connected with each bottle. Left pressure *P* was kept at 90 mm. of mercury, while right pressure *P* was varied from 10 to more than 100 mm. When the two solutions mix in the tissue of the kidney, it will be indicated by the resulting solution throwing down a prussian blue precipitate in container *C*. This whole apparatus, including glass beaker *R*, when the experiment is performed, is placed in copper container *C T* and kept at a temperature of 37.6 C. by means of thermostat *T*. While the kidney is being injected, it is kept in the warm Ringers solution in *R*.

12. Evans, H. M.: The Macrophages of Mammals, Am. J. Physiol. **37**: 243, 1915.
13. Clark, E. R., and Clark, E. G.: The Reaction of Cells in Tadpole's Tails to Ingested Croton Oil as Seen in Living Animal, Anat. Rec. **18**: 227, 1920; **21**, 1923.
14. Lewis, Margaret: Origin of Phagocytic Cells of the Lung of a Frog, Bull. Johns Hopkins Hosp. **36**: 361-375 (May) 1925.
15. Lewis, Margaret: Formation of Macrophages, Spicheloid Cells and Giant Cells from Leukocytes in Incubated Blood, J. Physiol. **91**: 7, 1925.

Second, when we inject dyes in the hydronephrotic sac we are dealing with permeability of membranes, and if we make the dye solution isotonic, solutions that otherwise are impermeable may become permeable. As an example, Grollman [16] found that sodium carminate in aqueous solution was impermeable in frogs' kidneys, while in Ringer's solution this dye passes readily through the membranes. Although the author did not mention the fact, this experiment corroborated the work of Loeb [17] for permeability of membranes, to be discussed below, in which tenth normal sodium chloride solution plus weak salt solution of higher valence, such as sodium carminate, became easily permeable in the renal membranes.

When india ink is used in injecting hydronephrotic sacs, since the macrophage activity is not very marked before twenty-four hours with this dye, as shown by Evans and Lewis, we found that if we killed the animals in a few hours after the injection we could determine the extent of the permeability with the macrophage activity factor being negligible. We found by this method that the permeability of the dyes was greatly reduced if they were made up in aqueous solutions, and that the dyes ascended only a short distance in the ducts of Bellini.

Although living animals were used in these experiments, the final work was conducted with cadaver kidneys. Now, it is possible to study the action of macrophages in living kidney tissue. It is known that the distal convoluted tubules and glomeruli can be seen on the dorsal surface of the living frog kidney and the proximal convoluted tubules on the ventral surface.[16] It would be interesting to study the macrophage action in living frogs' kidneys in the region of the glomeruli and the distal and proximal convoluted tubules, in a manner similar to the work of Clark and Lewis in the study of macrophages in the living lung tissue. It does not seem that phagocytosis plays a direct part in pyelovenous back flow except when the sac is infected or the injected pyelographic medium has become precipitated to stimulate macrophage action.

TABLE 1.—*Fate of the Various Dyes Injected Into Hydronephrotic Sacs*

Rabbit	Hydronephrosis	Dyes Used	Animal Killed	Gross Appearance of Sagittal Section	Microscopic Appearance
3	30 days	5% india ink	48 hours later	Black stain of parenchyma near pelvis	Macrophages seen in pelvic wall and venous spaces of calices
3	30 days	Alum carmine, 5% solution	48 hours later	Red, uniform permeation throughout cortex and medullary parenchyma; no radiation like back flow	Macrophages with red granules seen in tissue between calices, venules and in venules of cortex; no dye in acini of tubule
4	60 days	Alum carmine	48 hours later	Uniform permeation throughout thin sheet of cortex sac with red dye	Macrophages in wall of sac and interstices of cortex especially of venules
3	60 days	India ink	48 hours later	More pronounced pigmentation than 30 days hydronephrotic rabbits mentioned above	Macrophages in all the tissue; very few in lumen of tubules

Osmosis.—Osmotic pressure may be in equilibrium on two sides of a membrane and yet the hydrogen ion concentration may be different, which is explained by the fact that osmotic pressure is due to difference in concentration of crystalloidal ions in the inside and outside solutions. It is necessary to make correction of observed osmotic pressure for this difference in concentration of hydrogen ion and chloride ion on the basis of Donnan equilibrium.[18]

Using an isotonic solution so that the hydrogen ion concentration need not be taken into consideration, we injected this solution at 37 C. into a living rabbit's ureter with a pressure of from 30 to 35 mm. mercury. It will be found that it will become absorbed into tissues of the kidney, whereas below 30 mm., the fluid will absorb very slowly, if at all, and above 40 to 45 mm. one observes rather rapid absorption. At from 30 to 35 mm. pressure, there is a definite membrane absorption. A singular fact in this regard is that there is a difference of pressure between the glomerular capillaries and Bowman's capsule of 30 mm. and also proteins of plasma exert osmotic pressure of 30 mm.[19] Thus, we find that the permeability pressure of the pelvic membranes is equal to the osmotic plasma pressure. We have ruled out other factors in this experiment. To sum up this point, then, we may say that osmotic pressure plays a direct rôle in the absorption through a hydronephrotic sac or in a normal kidney pelvis.

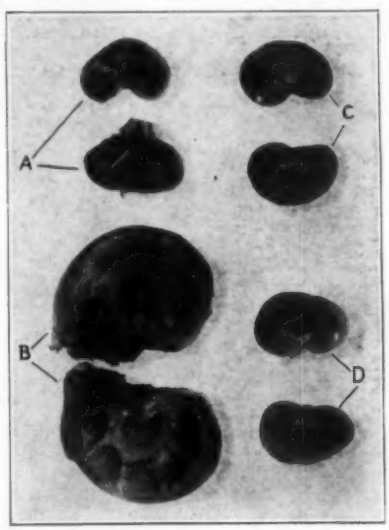

Fig. 16.—Effect of alkaline diet on hydronephrotic sac: *A*, *B*, left kidneys of two rabbits, both with sixty days' hydronephrosis. The rabbit with *A* and *C* (right kidney) kidneys was placed on an alkaline diet after one month hydronephrosis, and kept on that diet for thirty days. Rabbit with kidneys *B* and *D* was kept for the whole period on an acid diet. There is marked increase in size of hydronephrosis of the kidney in the rabbit with an acid diet.

Permeability.—It will be well to review briefly some highly important experimental work that has some direct bearing on our investigations. In this particular, we will discuss some work in the Rockefeller Institute by Jacques Loeb.[20] In one series of experiments, he found that a pig's bladder and powdered gelatin have a peculiarity in common that is not seen in solid block gelatin; namely, they swell considerably when treated with eighth molar sodium chloride followed by treatment with water; this is more pronounced than when the treatment is with water or salt alone. Many colloids have a similar property, and all salts with univalent cations have similar actions, such as lithium chloride and potassium chloride. Salts of alkali earths have about the same effect as distilled water alone, as, for instance, magnesium chloride and calcium chloride.

ANTAGONISTIC SALT ACTION

Loeb showed that the toxic effect of high concentration of salts with univalent cations could be inhibited by small quantities of salts with bivalent cations. It

16. Grollman, A.: Filtrability of Dyes, Am. J. Physiol. **75**: 287 (Jan.) 1926.
17. Loeb, Jacques: J. General Physiol. **5**: 255 (Nov.) 1922.
18. Loeb, Jacques: Rockefeller Inst. **44**: 311, 1923.
19. Starling: Principles of Human Physiology, Philadelphia, 1920.
20. Loeb, Jacques: Salts and Animal Membranes, J. Biol. Chem. **31**: 343 (Aug.) 1917.

is known that pig's bladder will swell greatly when injected with sodium chloride followed by water, but this swelling is inhibited if a small quantity of calcium chloride is added to the solution. Loeb's explanation of this swelling of proteins is the hyalinization of fibers of the bladder wall; that if the bladder is treated with sodium chloride and then washed with water, the actual washing out of the salt ionizes the molecules of the cells, thus causing the swelling.[21]

TABLE 2.—*Four Series of Injection Experiments to Demonstrate Pyelovenous Back Flow*

Exper. No.	Animal	Kidney Vessels Injected	Solutions	Pressure, Mm. Hg	Result	Microscopic Appearance
1	Sheep, four animals	Artery (1)	Potassium ferrocyanide, 1% solution	90	Positive at 40 mm. Hg	No injection of convoluted tubules
		Vein (2)	Outflow into hydrochloric acid 10% solution; contact of 1 and 3 solutions caused prussian blue precipitate in hydrochloric acid	0	Positive at 40 mm. Hg	Loops or glomeruli
		Ureter (3)	Iron ammonium citrate, 1% solution	From 10 to 100	.....	Blue precipitate in venules of cortex
2	Rabbit, six animals	Artery (1)	Potassium chromate, 2% solution	90	.....	Red stain at deep recessist, of fornix of calices and veins showing
		Vein (2)	Contact 1 and 3; red precipitate washout of vein	0	Positive at 35 mm.	
		Ureter (3)	Silver nitrate, 2% solution	From 20 to 40	.....	Direct contact of two solutions gross
3	Sheep, six animals	Artery (1)	Iron ammonium citrate, 2% and 10% hydrochloric acid	90	.....	Radial stain of cortex
		Vein (2)	Contact of 1 and 3 solutions; prussian blue precipitate washout of vein	0	Positive at 40 mm.	
		Ureter (3)	Potassium ferrocyanide	From 20 to 60	.....	
4	Sheep, six animals	Artery (1)	Double dye injection (carmine and berlin blue mixtures)	0 80	Red dye filters out Blue injected cortex	
		Vein (2)	.....	0 From 20 to 35	Stain* pyramids and cortex Blue remains	
		Ureter (3)	.....	30	.....	Rupture and extravasation of whole parenchyma of one pole at 150 mm.

* After the penetration of blue through the calices is once established, the pressure can drop to 40 mm. of mercury and the blue will continue to pass through with red dye.

PROOF THAT THE PROTEIN IS IONIZED

Pauli and others have shown that ionized protein cannot be precipitated by alcohol.

Three lots of gelatin were dissolved and the first treated with water alone; the second with eighth molar sodium chloride solution and then with water, and the third with salt alone. The quantity of alcohol used was that needed to precipitate 5 cc. of a 3 per cent gelatin solution of each of these three examples. It was found that it requires 5 cc. of 95 per cent alcohol to precipitate sample 1; about 7 cc. to cause the same precipitate of no. 3; and that no precipitate will occur in no. 2, even with 20 cc. alcohol. Keeping this Pauli law in mind, it is comparatively easy when treating living and cadaver tissues with various combinations of weak salt solutions, by treating gelatin with the same solutions, to determine the extent of ionization of the tissues.

We have found that hydronephrotic sacs, whether living or cadaver, behave exactly similar to these laws laid down by Loeb.

We injected into the pelvis of normal kidneys and into the hydronephrotic sacs of various stages of development, first, tenth molar sodium chloride solution under 20 mm. mercury pressure; this was then increased to 30 mm., 40 mm., etc., and the rate of absorption was noticed in each case. Then we washed out these pelves with water and tenth molar sodium chloride. It will be noted that these pelvic membranes become ionized similarly to the tissues described by Loeb, and also that when membranes are ionized it requires considerably more pressure to produce pyelovenous back flow.

The dangers of pyelovenous back flow, as reported below at the time of pyelography, would be removed if the pelvis were first washed out with tenth molar sodium chloride and then with sterile distilled water, thus ionizing the cellular membranes, because the pressure required to produce the back flow will be so much increased that there will be practically no danger of pyelovenous rupture occurring.

EFFECT OF CHEMICAL COMPONENTS OF HYDRONEPHROTIC SAC

Ligation of the duct of the parotid gland causes atrophy, as proved by Arnozan and Voillard,[22] Hupp[23] and many others. Also, ligature of the bile duct causes cirrhotic atrophy with icterus, as shown years ago by Charcot and Combouet.[24] Arnozan and Voillard also demonstrated the atrophy of the pancreatic gland with the ligation of the duct of Wirsung. The fact exists that, in all these glands, the ligation of whose ducts produces atrophy, their secretions have an alkaline reaction, whereas the enclosed urine that produces the large renal sac has generally a decided acid reaction.

EFFECT OF ACID SOLUTION ON PERMEABILITY

How would a solution act if it were slightly acid and contained the ordinary salts of the blood? Loeb has shown that the *Fundulus* egg still lives on indefinitely in a weak acid solution that contains sodium chloride or calcium chloride, whereas acid alone will kill the egg by rapid absorption in short order. Thus salts retard the rate of diffusion of acid through membranes. Also it was shown that fish die in three ten-thousandths molar nitric acid in less than an hour, while they live indefinitely when the same solution is made up in tenth molar sodium chloride. Calcium chloride is much more effective in the prevention of the toxic effect of acid.

Loeb found that salts accelerate the diffusion of alkali into the *Fundulus* egg. The eggs can live in a two hundred and fiftieth normal solution of alkali alone but are killed on addition of sodium chloride or calcium chloride; the latter salt is the more effective in aiding the absorption. Loeb sums up the work with this remark: "The fact that salts accelerate the rate of diffusion of disassociated alkalis and retard the rate of disassociated acids has probably some bearing on secretions and certainly has an important bearing on

21. Loeb, Jacques: J. Biol. Chem. **33**: 532 (March) 1918.

22. Arnozan and Voillard: Compt. rend. Soc. de biol., 1881, p. 234.
23. Hupp, Frank: Ann. Surg. **74**: 331 (Sept.) 1921.
24. Charcot and Combouet: Progrès méd., 1878, p. 82.

drugs and disinfectants." Sodium and calcium salts at the concentrations found in the blood and secretions of the body are most effective with acids and alkalis in affecting the permeability of membranes.

Five white albino rats were fed an alkaline diet for two weeks; five as controls were kept on a regular acid diet, consisting principally of milk and barley. The left ureters near the bladder were ligated in two places and cut under aseptic precautions. All the rats were killed in two days, with continual observation of the p_H of the urine and determinations as to the capacities of the pelves as well as the size of the kidneys. It is exceedingly interesting to note that the rats with the lowest p_H, i. e., with the highest acid urine, showed the greatest dilatation, whereas the rats with the alkaline urine showed no dilatation at all of the left kidney pelvis.

Two rabbits whose left ureters had been ligated and cut one month previously were used. On palpation through the abdominal wall, it could be determined that the hydronephrotic sacs of each rabbit were of practically equal size. To make sure, both animals were anesthetized, and under aseptic precautions the hydronephrotic sacs were delivered in a lumbar incision wound and measured; also, 1 cc. of urine was aspirated from the pelvis of each with a fine needle, p_H readings were made and the kidneys replaced and the wounds sutured. Rabbit A from that date was kept on an alkaline diet (abundance of greens, no barley, and 0.2 Gm. of sodium bicarbonate in the drinking water daily), whereas rabbit B was kept on a barley (acid) diet. At the end of the second month, both animals were killed and the hydronephrotic sacs measured as well as the urine contents examined. The sacs were then halved and mounted as permanent specimens. In comparing these sacs with the right kidney of the controls, it was remarkable to note that the left kidney of the rabbit with the alkaline diet did not apparently grow any; whereas, the hydronephrotic kidney with acid urine was over twice the size of the dilated kidney in the alkalized rabbit. Thus the p_H reaction of the excretion probably plays an important part in determining the size of the hydronephrotic sac.

DIRECT PYELOVENOUS COMMUNICATION

An experimental demonstration of a direct communication between the pelvis and the large veins may be given by the following experiment:

If a 2 per cent solution of alum carmine is mixed and then berlin blue powder is added to make a 5 per cent solution, the carmine which is ultramicroscopic will agglutinate the berlin blue granules. These berlin blue agglutinated granules will be from 2 to 4 microns in diameter and cannot possibly pass through membranes at ordinary pressures, although the ultramicroscopic alum carmine contains the property of solutions in that it is penetrable. On injecting fresh rabbits' and sheeps' kidneys by way of the ureter with this solution, at ordinary pressure from 20 to 40 mm., the berlin blue will remain in the pelvis, whereas the carmine will give a characteristic injected appearance of the cortex. However, if with this double dye solution in a fresh kidney a sudden pressure of more than 150 mm. of mercury is applied, the red and blue pigments will pass through together and will stain the cortex with the characteristic dark bluish striations.

TUBULAR BACK FLOW

The possibility of permeation from the collecting ducts directly into the venulae rectae has been mentioned; experiments to show that injection of the tubular system is extremely difficult have also been demonstrated. The radiation into the collecting ducts can be shown, and it is only necessary to recall the fact that if the tubular system were fully injected, a very diffuse, uniform and blurred picture would be the result, and not the distinct radiation and arching that is characteristic of pyelovenous back flow.

PARENCHYMAL EXTRAVASATION

Under conditions of sudden and great pressure, a direct extravasation of the pelvic contents takes place along the lines of least tissue resistance to the subcapsular region.

CONCLUSIONS

1. Pyelovenous back flow is of not uncommon occurrence clinically, and may be readily demonstrated experimentally.

2. The most common place of occurrence is at the fornices of the minor calices into the interlobar venous spaces.

3. In the manner of occurrence the following factors are probably of importance: diapedesis osmosis, and the permeability of the membranes.

4. The following facts are of practical importance with reference to the three foregoing conclusions:

(*a*) There is considerable difference with respect to results obtained whether the specimen used is perfectly fresh or not; on account of its direct relationship to the permeability of membranes in cadaver specimens, tissues readily become acid.

(*b*) The reaction of the urine would have, supposedly, an effect on the rate of permeability. An alkaline urine for example, due to a *B. proteus* infection, would be associated with an increased permeability of the pelvic membranes.

(*c*) The temperature at which the specimen and the injection fluid is kept must be taken into consideration.

(*d*) Each of the innumerable mediums that have been suggested for pyelographic purposes has its own colloidal content and its own peculiar ionization reaction to the membranes with which it comes in contact. Different types of pictures would be expected on account of differences in isotonic reactions of these different mediums.

(*e*) The manner in which pressure is applied is of the utmost importance, whether it is increased suddenly or gradually, and to what height.

(*f*) The character of the kidney with respect to age and disease is of importance. Greater ease of back flow is to be expected in childhood and in certain disease conditions.

(*g*) As demonstrated by Loeb, there is an individual variation in penetrability of membranes.

Normality May Be Neurotic.—Normality, too, then, may be neurotic. Normality, too, may have its repressions and its substitutions, its secret symbols and equivocations. The difference is that as normality possesses the warrant of the institutionalized and current, it enjoys the protection of the consensus. And just as the neurotic fails to comprehend the meaning of this vicarious manifestation in its individual expression within himself and is a prey to the inscrutable symptoms in which his organism finds its compensations, so we who are accounted normal as little suspect the meaning of this same symptomatology as it exists in its social expression within ourselves. The neurotic resolutely defends his unconscious duplicity behind an ingenious charade of unconscious symbolism, and we no less resolutely defend ours through recourse to an identical device. But if we look beyond the narrower confine of the clinic and face squarely the logical issue of Freud's thesis, we cannot avoid the conclusion that it is an indictment of man's consciousness in its entirety. Hence normality, too, must make answer for its complicity in the unconscious ruse of substitution and evasion which we observe in its more intense reaction as the introversions of personality presented in the obviously arrested expression we call neurotic.—Burrow, Trigant: *J. Nerv. & Ment. Dis.*, September, 1926.

ROENTGEN-RAY STUDIES OF THE APPENDIX, CECUM AND ASCENDING COLON *

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My purpose in this paper is to emphasize the importance of the roentgenologic examination of the appendix, cecum and ascending colon. That surgical intervention of chronic appendicitis has been instituted too liberally is proved by the large proportion of patients in our clinics who have failed to secure desired relief following appendectomies. It is quite generally accepted that a pathologic appendix is frequently only a part of a more general pathologic condition which involves the cecum, ascending colon and often other organs. As the roentgenologist can secure visible results while the organ is being palpated or is exercising its function or is under motion from the rotation or change of posture of the patient, it becomes both a duty and a necessity that he should analyze what he has found and endeavor to render correct clinical interpretation.

Many pathologists maintain that the cecum, proximal colon and appendix are nearly always synchronously involved in the same pathologic changes, and it seems certain that they share in the causation of many abdominal conditions.

Acute inflammation involving these portions of the intestine is not considered. Chronic inflammation of the appendix exists almost entirely as tuberculous appendicitis. The pathologic changes that I wish to consider are concerned with location, fixation, mobility,

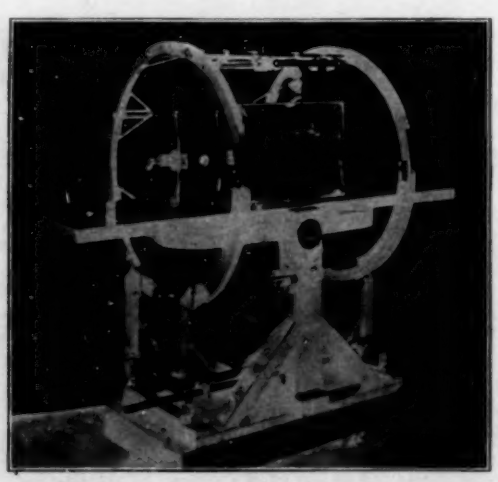


Fig. 1.—Table devised for pneumoperitoneum and peritoneoscopy which offers convenient and desirable positions for practical roentgenologic observations in the filling and the examination of the appendix. The roentgen-ray beam can be conveniently changed from the horizontal to the perpendicular planes without changing the position of the patient or interrupting the observations of the screen.

tenderness, position and capacity to function. The significance of these changes, when a patient's general condition is considered, carries sufficient clinical importance to warrant their investigation.

The technic of our roentgen-ray studies for the last fifteen years has varied considerably, and it was not until 1920 that our own equipment permitted us to make such screen observations as are required to make the procedure practical. In addition to the usual observation in the erect and reclining postures, I wish to emphasize the necessity of observations conducted while the patient is rotated from the perpendicular to the vertical planes. These observations must also be combined with skilful palpation of the part under examination while it is under varying degrees of distention with air, or opaque mediums, or both.

To put this examination on a practical basis, we have utilized a specially built table devised originally for

Fig. 2.—Barium filled appendix, fixed in a retrocecal and retrocolonic position; lumen with irregular contour, localized obliteration; narrow proximal lumen; dilatation near the distal end containing appendolith, and extreme distal end showing very narrow lumen and definite evidence of complete obliteration. The technic of filling required clysma, distention of cecum, painstaking palpation with cecum in varying degrees of distention, and finally the clysma siphoned away to permit visible observations of the appendix. Position of patient during observation was horizontal with right side upward, as indicated on table in figure 1.

work with pneumoperitoneum and peritoneoscopy, and we find it in every way successful (fig. 1).

LOCATION

The appendix may be said to have three general locations; high in the abdomen with the ascending colon, in the iliac fossa with the cecum, and low in the pelvis with the ileum. Anatomic studies by Byron Robinson showed its location in the iliac fossa more frequently than in all other locations combined, and our investigations with the roentgen rays corroborate this.

The cecum occupies the same three general locations described for the appendix. Its location is usually in conjunction with the appendix.

The ascending colon and the hepatic flexure usually occupy a position between the iliac fossa and the right hypochondrium posteriorly, but they may be in the iliac fossa or near the anterior abdominal wall in the abdomen.

The location of these organs, we believe, has very little importance except when it may compromise their function.

FIXATION

By fixation, we indicate the absence of that degree of mobility which we have learned to regard as normal when the examination of the proper character is instituted.

An appendix fixed at any portion and causing angulation in certain postures may be regarded as pathologic. Fixation along the entire line of the appendix is almost

* Read before the Section on Radiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

always accompanied by sufficient occlusion near the cecum to disturb function.

The cecum and ascending colon show some mobility normally both toward the median line and by the longitudinal sliding motion.

Fixation at any point with angulation is pathologic, and the degree of disturbance in function usually determines its clinical importance.

MOBILITY

By mobility of these organs we designate a condition which experience in a large number of observations indicates as being associated with pathologic changes noted clinically. The disturbance may originate within these organs from physiologic or anatomic derangement (fig. 6). Their extreme mobility may also induce disturbance in a distant organ; e. g., arteriomesenteric compression of the duodenum through extra tension downward on the mesentery and the superior mesenteric artery and vein, a condition emphasized long ago by Byron Robinson.

TENDERNESS

Tenderness of the appendix can probably be elicited only in conjunction with roentgen-ray observation, and in rare cases it cannot be determined. A tender appendix carries far more clinical value than tenderness at McBurney's point.[1] Palpation with properly conducted observations when there is right abdominal tenderness should almost always be sufficient to detect which organ is responsible. Tenderness at definite points along the colon is usually determined with accuracy, and its importance can be appreciated in connection with the other aspects of the case.

Fig. 3.—Retrocecal appendix similar to and requiring the same technic of examination as figure 2. Diagnostic importance is emphasized in this case because history showed operation antedating the examination by two months, with the preoperative diagnosis appendicitis and the postoperative diagnosis salpingitis and cystic ovary, and the appendix was not found. Operation following this examination removed the appendix from its retrocecal position.

POSITION

We recognize no abnormal position without fixation.

A pathologic appendix may be curled on itself in the iliac fossa (fig. 5); straight alongside the ascending colon (fig. 3), or angled over the brim of the pelvis (fig. 4) in a constant position throughout the proper examination.

1. Childs, S. B.: Appendicitis and Lesions Complicating Its Diagnosis, Radiology 4: 107 (Feb.) 1925.

With an unusually mobile cecum and ascending colon, position carries very little significance.

CAPACITY TO FUNCTION

By function we understand the capacity to receive and eliminate opaque substances from the lumen.

Experience with the radioscope constitutes the only school in which a roentgenologist may develop a clear conception of the normal capacity to function.

A cecum retaining opaque mediums during a careful examination after the ascending colon is empty is cer-

Fig. 4.—Appendix, filled with difficulty, showing local central obliteration; dilated distal end; appendolith, fixed cecum and ascending colon in iliac fossa; shadow of rectal tube still inserted after principal portion of clysma was siphoned away to uncover pathologic appendix, the cecum and ascending colon. The appendix is, potentially, surgical.

tain evidence of pathologic changes in one or the other, or both.

Masses of opaque substances retained in the region of the hepatic flexure have less clinical importance than retention in the appendix and cecum.

Opaque masses are not retained at the point of intrinsic lesions. By skilful palpation, tenderness between masses of retained barium may be elicited; this is of considerable clinical importance.

The slowing effect of age on the capacity to function must not be disregarded when roentgenograms are interpreted.

LUMEN OF THE APPENDIX

In the young, the lumen of the appendix is frequently found to retain a degree of the fetal type and to appear funnel shaped at the proximal end (fig. 5). Appendixes from adults are nearly all smaller at the neck, and the folds of mucosa aid in giving a valve effect. Normally, the lumen maintains almost the same size throughout its entire length.

Kelly and Hurdon state that 5 per cent of the appendixes removed from adults are completely obliterated, and more than one third of them show obliteration of the lumen to some extent.

The tendency of the lumen to decrease in size with increasing age is a fact noted whenever a series of adult appendixes are examined.

Definite obliteration of the lumen is a pathologic change. Obliteration is more frequent at either end than in the central portions, and is usually more marked as well as most frequent at the distal end. Appendixes showing fixation at the distal end, whose lumen narrows to a point when barium is put under pressure by palpa-

tion, are undergoing obliterative changes and are frequently symptom producing.

Appendixes with dilated distal end and with a narrow proximal lumen are pathologic (fig. 4). Such appendixes frequently show an appendolith, a pathologic retention, i. e., three days or more, a proximal lumen retaining no barium, or a narrow segment near the dilated portion retaining no barium and suggesting organic stricture; they are not only symptom bearing, but are frequently potentially surgical.

Obliteration of the lumen of the appendix seems to be established as a distinctly pathologic change, but Skinner [2] has advanced an interesting hypothesis, which he believes warrants the conclusion that obliteration, after the patient is past 30, is indeed a purely normal physiologic phenomenon.

Distal end obliteration or general obliteration of the entire lumen we have learned to regard as of little consequence, so long as the cecal orifice remains funnel shaped and thoroughly patulent.

Central obliterations have frequently been observed in cases in which the capacity to fill and empty was deranged, and in which the patients later developed distinctly surgical appendixes that were removed. It is the appendix with central constriction of the lumen that most frequently becomes acutely inflammatory. Partial central constriction from angulation, fixation and other conditions of a pathologic anatomic character constitute a fairly large percentage of the pathologic appendixes which, of themselves, do not warrant radical intervention but, when considered in the causation of the patient's general clinical condition, their removal constitutes one of the most successful procedures in the practice of medicine.

COMMENT

Nearly all of the roentgenologic literature available on this subject has been based on a study of films that record the examinations at stated intervals following

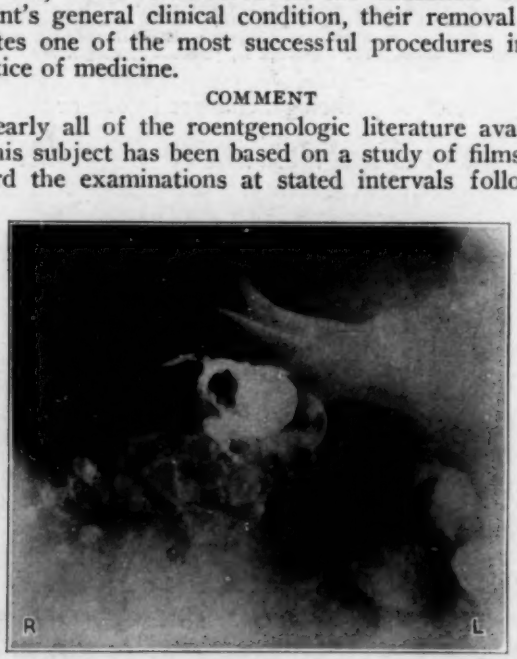


Fig. 5.—Appendix filled in the iliac fossa; also freely movable cecum and ascending colon. The appendix is curled on itself; it fills and empties without difficulty, with funnel shaped lumen at proximal end. The appendix is pathologic, but not potentially surgical.

the ingestion of an opaque meal or enema. Variation of the ingredients composing the meal and the relative value of the opaque clysma and meal are discussed. It is obvious that this plan of conducting an examination accounts for statements to the effect that "the appendix cannot be demonstrated as it is retrocecal, hidden, etc." [3] (figs. 2 and 3). By the application of the methods outlined in this paper I believe we have succeeded in rendering all filled appendixes visible by the screen, and in almost all cases a film can be secured for a permanent record (figs. 1 and 2).

I wish to emphasize my conviction that roentgenograms alone cannot possibly reveal all that is required in a study of this segment of the intestinal tract. The observations are of two classes, the direct, which include those already referred to, and the indirect

Fig. 6.—Appendix fixed, position toward median line; cecum fixed in the iliac fossa; ascending colon and hepatic flexure unusually mobile. Appendix showed marked tenderness, painful and difficult filling, with exaggerated peristalsis and complete emptying in a spastic manner during the period of observation.

or referred.[4] It is generally accepted that a definite irritation at any point along the gastro-intestinal tract will be manifested in some manner in every other segment of the tract.

Referred observations from irritation of the appendix frequently appear more intensive than the seriousness of the lesion would indicate. The referred observations are described as: pylorospasm, with or without gastric retention; duodenal spasm (fig. 7), usually manifested in the cap; colonospasm, usually more or less localized and frequently at a point of close proximity to the point of irritation; iliospasm, noted in many cases with ileac delay; cecospasm, frequently sufficiently permanent to simulate a defect from an intrinsic lesion, and erratic peristalsis in the duodenum or other segments of the small intestines.

The importance of the referred or reflex observations can be evaluated only when considered in conjunction with other observations and a study of the symptoms. In one case a localized colonospasm will be of great importance, while another apparently similar case will show little or no colonospasm. Schack [3] states that "an appendix which does not produce the usual reflex roentgen findings has very little to recommend it as a source of danger." White [5] remarks: "These signs are numerous and graphic, and because they are so easily seen are apt to be overemphasized."

2551 North Clark Street.

ABSTRACT OF DISCUSSION

Dr. A. C. Christie, Washington, D. C.: I wish that Dr. Orndoff would give to us in some detail the roentgenologic observations on which he bases the recommendation for surgery.

2. Skinner, E. H.: The Roentgenology of Appendical Obliteration, J. A. M. A. **75**: 1614 (Dec. 11) 1920.
3. Schack, A. G.: Chronic Appendicitis, Am. J. Roentgenol. **13**: 438 (May) 1925.
4. Bierman, M. I.: Chronic Appendicitis, Radiology **5**: 152 (Aug.) 1925.
5. White, F. W.: The Clinical Importance of Chronic Changes in the Appendix, Am. J. Roentgenol. **13**: 12 (Jan.) 1925.

DR. JOHN F. HERRICK, Ottumwa, Iowa: Dr. Orndoff's paper raises an important question; that is, What are the clinical manifestations accompanying the results shown in the roentgenograms, especially the spasm? There is no doubt that patients, especially women, in whom the condition is most common, are operated on with a diagnosis based on such observations. This important field should be investigated and a proper interpretation put on spasm of the colon. These spasms are probably a manifestation of vagotonia, or excessive irritability of the vagus system. Whether the point of irritation provoking the spasm is in the appendix, colon or other parts of the alimentary canal should be determined. In some cases the spasms are persistent, painful and so disabling as to make of the patient a chronic invalid.

DR. E. H. SKINNER, Kansas City, Mo.: I am much intrigued by the method of examination that Dr. Orndoff has presented. In my territory I have been particularly interested in the study of pericolitis dextra, which was first described by Dr. J. V. Jackson of Kansas City, who has written extensively also on the surgery of retrocecal appendix. Orndoff's method is ideal for studying a case of pericolitis dextra. The pathologic condition in pericolitis dextra is the fixation of the ascending colon or that portion of the colon just above the cecum which seems to be held fixed in the iliac fossa and to the parietal walls through adhesions. One can readily understand that when there is even a small amount of interference to the peristalsis of the colon musculature, that portion of the colon behind it will become dilated. When the ascending colon is maintained in this position one will find a large cecum, and it may occupy a position in the pelvis. The appendix almost always fills. When there is fixation without the haustral fluting, the points of clinical interest disclosed by the roentgen ray may be seen on the mesial margin of the colon because of the adhesions. The haustra on the outside of the colon may be visualized, but the haustral outlines along the mesial portion of the ascending colon are lost because of the adhesions. There will be retention in the cecum. In cases of retrocecal appendix, the roentgen ray frequently fails to show the shadow of the appendix, and yet, finding a pain point under fluoroscopic palpation shows that there is something there that we should like to know more about. Sometimes it is necessary to wait until the colon has released the contents of the cecum before one can see the appendix. Frequently with a retrocecal appendix the lower cecal outline appears as though a string were attached to the bottom of the fundus of the cecum and then pulled up on from behind. This dimple will be found in the lower margin of the cecum, which should lead one to suspect retrocecal appendix. As to vagotonia, peritoneal irritation at any point may be responsible for spasm at the same or any other part of the gastro-intestinal tract. The spasm does not have to display itself as closely to the irritation as was shown in a number of Dr. Orndoff's slides.

DR. H. J. ULLMANN, Santa Barbara, Calif.: I wish to emphasize Dr. Skinner's remarks on the possibility of an irritation anywhere along the gastro-intestinal tract producing spasm. Some time ago a woman was sent to us with a history of violent vomiting; and that was all. The clinical diagnosis was carcinoma of the stomach with obstruction. She also had obstipation, but that was in the background. We gave her a meal and there found complete obstruction. The stomach was tremendously large and retained the whole meal. I gave an enema, and the barium stopped at the splenic flexure. A little barium during the night got by the pylorus enough to outline the colon vaguely. It was enormously distended. A carcinoma was found in the splenic flexure.

DR. I. D. BRONFIN, Sanatorium, Colo.: The method described by Dr. Orndoff is extremely interesting to one who is called on to treat tuberculous patients in large numbers. I want to know whether the method as described has proved of any value in making an early diagnosis of tuberculous involvement of the colon, and especially of the cecum. The problem of making an early diagnosis of tuberculous enteritis or enterocolitis is very great. The absence of a filling defect in the cecum does not necessarily exclude a pathologic condition; yet one is not always justified in making a diagnosis on symptoms alone. If a reasonably early certain diagnosis could be made by means of the roentgen ray, it would prove of great value to the patient by instituting in time suitable medical measures to check the spread of the disease.

DR. BENJAMIN H. ORNDOFF, Chicago: It was not my purpose in the paper to discuss the pathologic conditions of that portion of the intestine, but I had hoped that I could bring out the advisability of an investigation of this character for this portion of the intestine. In our clinics it is, as a rule, finished when an opaque enema is given after a plate is made and the patient is lying on the table face upward. At the most, screen examinations are conducted during the time the colon is being filled, and frequently I find that these examinations are made by technicians and not by a medical man. The radiologist is called only when some evidences of pathologic change are encountered by the technician. That is slighting a very important phase of medicine. There is much to be said about cyclic vomiting. I spoke of many things in my paper that were not brought out by the problem of the influence of pathologic conditions of the appendix, cecum and ascending colon. We can hardly speak of one to the exclusion of the other. The importance of a careful study of this region, with the patient in different positions and with the organ under different degrees of distention, cannot be overemphasized. I feel that practically every filled appendix can be visualized and hence very much valuable information secured.

Fig. 7.—Extracecal appendix, filling with difficulty and emptying whenever intracecal pressure was reduced. There is narrowing of the proximal lumen, which showed tenderness to palpation and caused marked localized cecospasm and colonospasm.

An Economical Diet.—A diet which consists of a liberal allowance of good wholemeal bread, oatmeal and other cereals, dried peas and beans, potatoes and onions, milk, butter and cheese—a little bacon and a little meat—some raw vegetables and dried fruits, a little fresh fruit and an occasional fresh egg is within the reach of most family budgets. It can be still further reduced in cost by the use of fresh herrings instead of the expensive cuts of meat, and the use of margarine in place of some of the butter, and by selecting the cheaper kinds of green vegetables and fruits, such as cabbages and oranges, which are not only inexpensive but more valuable for their special purposes than many of the more costly articles. When oranges are dear they can be replaced by the germinating beans or peas referred to in our discussion of vitamin A, or by watercress. . . . At least two pints of fluid, and better still three pints, should be drunk daily in addition to fluid taken with meals. An excellent practice is to drink three or four tumblers of water during the day and to take only a small quantity of liquid actually at meal times.—Belfrage, S. H.: What's Best to Eat? New York, 1926, William Wood & Co.

Clinical Notes, Suggestions and New Instruments

A DEVICE FOR ECONOMICALLY OILING PONDS AND OTHER WATERWAYS

William O. Wetmore, M.D., Schofield Barracks, Territory of Hawaii
Major, Medical Corps, U. S. Army

A device has just been perfected for economically oiling ponds and other waterways in mosquito control and is conceived as a practical method for having oil companies deliver oil to boards of health and others.

Fig. 1.—Oiling device; side view.

The invention consists of a conical can, which is constructed with a diaphragm near the bottom, the lower chamber thus formed to contain weight, such as sand, and an upper chamber, which will contain oil. Both chambers are equipped with a cap for filling. A tube is soldered to the outside of and runs the length of the oil chamber, with an inlet at the top and opening into the oil chamber at the bottom. The apex of the oil chamber has a wire wick of the desired size to permit the oil to escape in droplets.

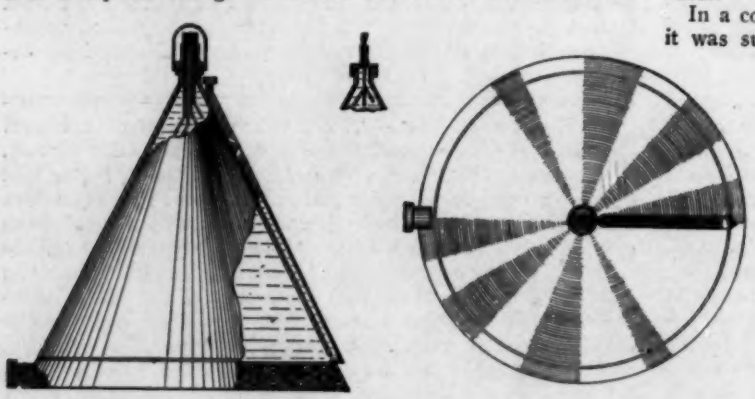


Fig. 2.—Oiling device; side view and top view showing mechanism.

In practical use, the can is tossed into a pond; the weight sinks it; air escapes from the apex followed by oil; water is drawn into the lowest portion of the oil chamber, displacing the oil, and continues until the oil is exhausted. A 5 gallon can will keep a pond the size of a city block oiled, if it is replaced once a month.

The device works well in water covered with vegetation. One feature of the device is that it is economical, because the exact amount of oil can be estimated and used. The can is inexpensive to construct.

The device is not yet on the market, but a patent has been applied for.

A SIMPLE METHOD OF INTRODUCING IODIZED OIL INTO THE LUNGS

J. J. Singer, M.D., St. Louis

Since the introduction of the use of iodized oil by Sicard and Forestier,[1] many uses have been found for the iodized oil in the roentgen-ray study of the lungs and pleura. The methods described by the originators are complicated and require unusual, expert skill in the use of intratracheal instruments. While there can be no objection to the methods that have been outlined by various authors, it seems that the simplest method would obviate the use of the bronchoscope and the intratracheal introduction of instruments in many cases.

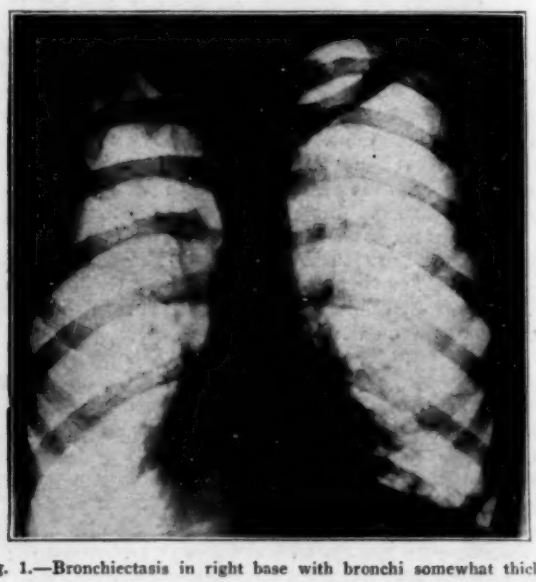


Fig. 1.—Bronchiectasis in right base with bronchi somewhat thickened.

In a communication by Lian, Darbois and Navarre[2] in 1922, it was suggested that the iodized oil could be aspirated into the lungs by pulling out the tongue and injecting the oil at the base of the tongue. Apparently this method has not been in vogue in the United States, although Pritchard[3] of Battle Creek, Mich., has done considerable good work with this method but with the use of cocaine anesthesia.

Occasionally one finds a person who is sensitive to morphine and anesthetics. In an attempt to introduce iodized oil recently, a patient with bronchiectasis developed cocaine poisoning and collapsed. A few days later an attempt was made to introduce iodized oil by pulling the tongue out as far as possible and introducing the oil with a straight cannula connected with a 20 cc. syringe. An Asepto syringe, which is made by Becton, Dickinson & Co., Rutherford, N. J., is suitable for this purpose. The tip of the cannula

1. Sicard, J. A., and Forestier, J.: Methode générale d'exploration radiologique par l'huile iodée, Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 463 (March 17) 1922.
2. Lian, Darbois and Navarre: Nonpénétration dans la trachée des injections dites intratracheales faites par un procède simplifié, Bull. et mém. Soc. méd. de hôp. de Paris **46**: 470 (March 17) 1922.
3. Pritchard, Stuart; White, Bruce; and Gordon, J. K. M.: Use of Iodized Oil in Diagnosis and Treatment of Bronchial Affections, J. A. M. A. **86**: 1119-1123 (April 10) 1926.

is positioned above the root of the tongue and the soft palate, not touching either. By insisting that the patient does not swallow during the introduction of the oil, which is done very slowly, we were surprised to obtain a perfect picture of the bronchiectatic cavities in his lung. Since then we have used it in twenty-five other cases and have failed in only two instances to obtain roentgen-ray plates that were of diagnostic value. We feel, therefore, when the use of iodized oil is indicated, that this aspiration method, without anesthesia,

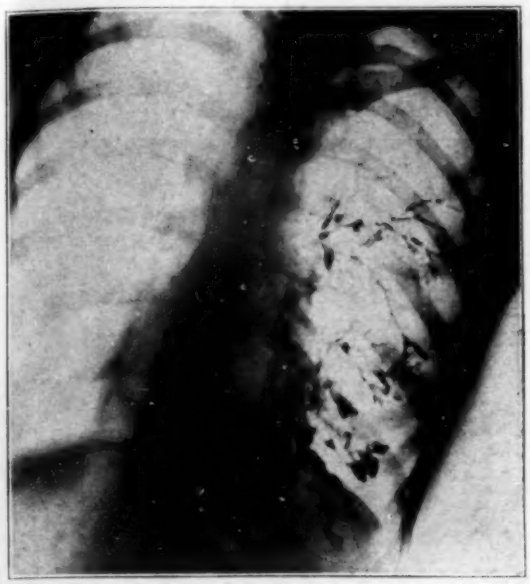


Fig. 2.—Appearance after use of iodized oil by aspiration method.

should be tried first, and then if unsuccessful more complicated methods can be tried.

Figure 1 shows bronchiectasis in the right base with the bronchi somewhat thickened.

Figure 2 shows the condition after the use of the iodized oil by the aspiration method. The original negative, of course, shows the bronchial markings more clearly, but one can easily see the bronchial dilatations.

IODIZED OIL AND PNEUMOPERITONEUM COMBINED IN GYNECOLOGIC DIAGNOSIS: PRELIMINARY REPORT *

IRVING F. STEIN, M.D., AND ROBERT A. ARENS, M.D., CHICAGO

Pneumoperitoneum as a diagnostic measure has passed the stage of experiment and research and is now a method commonly utilized in gynecology. Similarly, the use of opaque mediums for uterine and tubal diagnosis has met with a measure of success in the hands of Heuser, Forestier, Kennedy and others. As far as we are aware, the two methods have not been combined before. We first considered this combination as to its practicability in December, 1925, and have adopted it for some time past as a means of roentgen-ray diagnosis in our gynecologic clinic. The following case may well illustrate this use:

REPORT OF CASE

Mrs. R. E., aged 25, who had been married three years, and whose last menses occurred, May 21, 1926, was sterile. Examination revealed a mass in the right adnexa almost fist sized, which was adherent and tender. In the absence of any inflammatory history, and the cervical examination being negative, a patency test was advised. The fallopian tubes were found patent, the carbon dioxide passing through at a pressure of 80 mm. After 1 liter of gas was thus introduced into the peritoneal cavity, 2 cc. of lipiodol was injected into the uterus through the same cannula. The patient was then placed in the partial knee-chest posture as advised by Peterson, and stereoroentgenograms were made.

As revealed in figures 1 and 2, the tubes both admitted lipiodol through their entire length, and there was no tubal pathologic change. The right ovary was cystic, about 7 cm. in diameter, and adherent to the bowel. These adhesions were clearly visible.

Fig. 1.—Appearance of injected iodized oil and pneumoperitoneum.

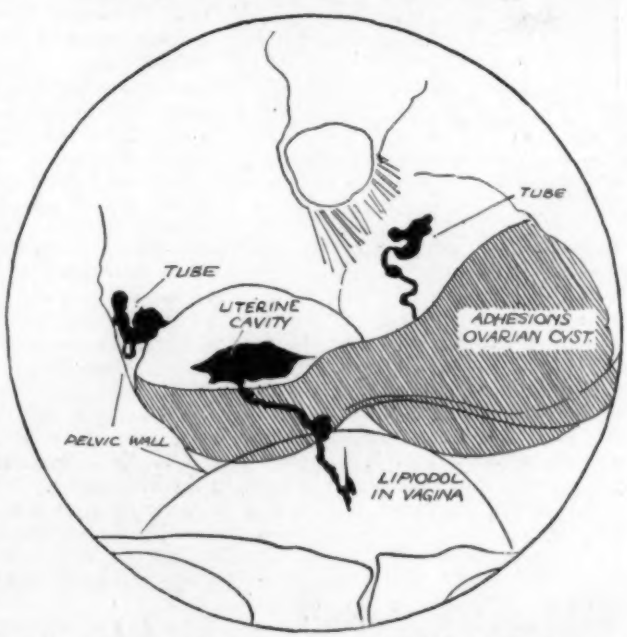


Fig. 2.—Diagrammatic appearance of injected iodized oil and pneumoperitoneum.

COMMENT

We publish this preliminary report in the hope that others will use the combined method described and record their results.

We have no conclusions to submit at this time, as our series is as yet too small.

310 South Michigan Avenue—5437 Greenwood Avenue.

* From the gynecologic and roentgenologic services of the Michael Reese Hospital, and the Adolf Stein Memorial for Research in Roentgenology.

NEW METHODS OF OBTAINING ELECTROMYOGRAM AND ELECTROCARDIOGRAM FROM THE INTACT BODY *

CURT P. RICHTER, PH.D., BALTIMORE

In order to obtain records of the action currents from voluntary and reflex contractions of the muscles of the human body, we have devised an electrode that is considerably simpler in construction and manipulation than any of the others commonly employed today. It consists of a sheet of pure zinc about 1 inch square, held in contact with the skin by means of a paste made of kaolin and saturated zinc sulphate solution. This paste alone is sufficient to hold the electrode in place on almost any part of the body; where there is much violent movement of muscles, a large rubber band may also be applied.

This electrode has the following advantages: (1) It is nonpolarizable; (2) it is quickly and easily prepared; (3) it can be attached over any part of the body, however irregular and inaccessible to other electrodes, and (4) it makes an intimate, moist contact with the skin without producing any irritation or injury even when left in place for several hours.

Besides the difficulty offered by the electrodes, work in electromyography is complicated by variations in the resistance of the body in different individuals and in the same individual at different times. Resistance may fluctuate from a few hundred to more than a million ohms. When the resistance of the patient is very low, a relatively tight and rapidly responding string may be used; but in patients with a very high resistance it is necessary to use a much slower string. We have found a method by means of which this difficulty can be easily and quickly overcome. In another paper[1] it was shown that the resistance, localized in the skin, is practically eliminated by a scratch or a puncture, however slight, made through the skin. We make the puncture with a fine hypodermic needle above the muscle from which the action currents are to be obtained and attach the electrodes over it. The kaolin produces no irritation even when applied in this way to the injured tissue.

New arrangement of electrodes for making electromyographic and electrocardiographic records.

In electromyographic work, it is often important to obtain monophasic rather than diphasic action waves. For this purpose we attach one electrode, as described above, over the contracting muscle and the other over the immobile lobe of one ear. A puncture is made through the skin of the ear, and the electrode held in place by a metal clip insulated and padded with soft rubber cushions, as in the illustration.

Essentially, the same methods can be used in electrocardiography. The small square of zinc can be applied much more easily and conveniently than the cumbersome electrodes in ordinary use. Furthermore, with the negligible body resistance produced by the slight skin injury, it is possible in each case to work with a 1 cm. string (with or without the patient in circuit), and so obtain records under conditions constant for every patient.

We have found this method particularly useful in work with small animals, rats and guinea-pigs, in which without a skin puncture it is often impossible to obtain an electrocardiogram because of the high resistance. A small scratch with the point of a fine sewing needle eliminates this difficulty.

* From the Psycho-Biological Laboratory, Phipps Psychiatric Clinic, Johns Hopkins Hospital.

1. Richter, C. P.: Significance of Changes in Electrical Resistance of Body During Sleep, Nat. Acad. Sc. **12**: 214 (March) 1926.

UNILATERAL SYMMETRICAL CONGENITAL TALIPES IN TWINS

E. J. BERKHEISER, M.D., CHICAGO

The occurrence of congenital clubfoot in members of twins is very rare. The opposite opinion seems to have existed that clubfoot deformity was likely to occur in multiple gestations, since there was less space within the uterine cavity and consequently the developing fetuses were crowded together, thus predisposing to developmental variations. This theory seemed to be generally accepted for many years; but, like many other

Fig. 1.—Talipes in twins.

Fig. 2.—Appearance after operation, in November, 1922.

hypotheses, it has been found to be incorrect. Statistics show that congenital talipes occurs less frequently in multiple than in single gestations. In fact, only four bilateral cases could be found after a thorough search of the literature. In these cases, reported by Rugh,[1] Ehrenfried,[2] Ely[3] and Owen,[4] there

1. Rugh: Double Congenital Equinovarus in Twins, Am. J. Orthop. Surg. **4**: 179, 1906-1907.
2. Ehrenfried, Albert: The Occurrence and Etiology of Clubfoot, J. A. M. A. **59**: 1940 (Nov. 30) 1912.
3. Ely: Double Clubfoot in Twins, M. Record, June 19, 1915, p. 1022.
4. Owen, W. B.: Bilateral Symmetrical Talipes in Twins, Internat. Clinics **1**: 178, 1917.

was bilateral clubfoot. No reference was found relative to the unilateral deformity in both members of twins.

In May, 1921, Bernice and Charlotte G., twin girls, aged 20 months, were brought to the orthopedic dispensary of Rush Medical College at the Home for Destitute Crippled Children. The only other child was an older brother, who was normal. The father and mother were free from any congenital deformity, but a cousin also had a similar deformity of the foot. Both the girls were anemic and rachitic. They were underweight and were subject to rhinitis and tonsillitis. They were breast fed for sixteen months. The moderate talipes equinovarus deformity of the left foot was the only malformation found. They had never walked. Although treatment was advised they did not return for more than a year, at which time they were walking on the outer and dorsal aspect of the feet. June 2, 1922, they were operated on under ether anesthesia. Subcutaneous tenotomy of the posterior tibial and plantar flexors of the toes and a plantar fasciotomy were performed. Then the varus deformity was easily overcome, after which the Achilles tendon was divided and the position of the feet was entirely overcorrected. Plaster casts were then applied from the toes to the hip, with the knees at right angle and overcorrection at the feet. After three weeks the casts above the knees were removed so as to permit walking in the corrected position. After several changes of casts the photograph reproduced in figure 2 was taken, in November, 1922, when they could voluntarily overcorrect the position of the feet. The shoes were then altered by means of a wedge of leather under the outer margin of the sole. They were requested to return for observation because of the danger of recurrence of the deformity, but they have not been seen.

7 West Madison Street

IRIDOCAPSULOTOMY SCISSORS WITH NEW FEATURES*

CONRAD BERENS, M.D., NEW YORK

These scissors have been found satisfactory for cutting dense secondary membranes, where de Wecker's scissors or Noyes' scissors would ordinarily be used, and for performing iridocapsulotomy.

As the blades of the scissors are very thin and narrow, they may be introduced into the anterior chamber through a 2.5 mm. subconjunctival opening made at the limbus, a narrow Agnew keratome being used.

This method is probably the one of choice, although the instrument was primarily designed to penetrate the limbus subconjunctivally without making a keratome incision.

Iridocapsulotomy scissors: Dotted lines indicate position of blades when forced open.

DESCRIPTION OF SCISSORS

The blades are 14 mm. long, pointed and slightly curved, and are held closed by a strong spring. One blade is the direct extension of the octagonal handle, which is 14 cm. in length. The other blade, which is movable, is activated by an arm (*A*), 48 mm. in length. This arm is joined to an arm (*B*) at right angles to it, which passes through the center of the handle 57 mm. from the tip of the blades. The scissors blades are forced closed by a strong spring (*C*).

Downward pressure on the end of arm *A* and upward pressure by the tip of the index finger under the angular end of arm *B* opens the blades. The blades are the same shape as the Noyes scissors except that both blades are pointed instead of one being dull. The action is entirely different; the Noyes scissors have the usual crossed scissors action, while these have the duck bill action, being always closed by a spring unless pressure or traction is exerted by the operator, which makes it easy to introduce and manipulate the instrument in the anterior chamber. The Noyes scissors are always open unless pressure is made by the operator, making it practically impossible to turn the scissors in the anterior chamber. The Noyes scissors can be manipulated only from one side unless the scissors are removed from the anterior chamber, but arm *B* passed through the handle of these scissors makes them easy to manipulate from either side.

After introduction into the anterior chamber, either blade is passed through the membrane or iris after they are opened by downward or upward pressure of the index finger, depending on the direction of the curve of the blade desired by the operator. The spring closes the blades and will cut any but the toughest membrane, in which case pressure may be exerted by the index finger.

30 East Fortieth Street.

* These scissors are made by and may be obtained from George Tiemann & Sons, 107 East Twenty-Eighth Street, New York.

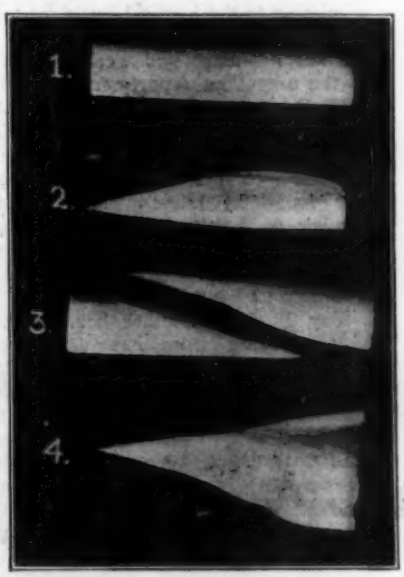
* Read before the Section on Ophthalmology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

THE USE OF COTTON DENTAL ROLLS FOR EAR DRAINS

MEARLE C. FOX, M.D., PORTLAND, ORE.

There is a difference of opinion as to whether irrigation or dry drainage is the more beneficial for acute suppuration of the middle ear, the two being equally well supported by good authority.

For the benefit of those who wish to use dry drainage, I would call attention to the use of no. 1, inch and a half, cotton dental rolls, such as are used by dentists for blocking off the secretion from their fields of operation.



Method of cutting roll: 1, roll before cutting; 2, cut surface of roll; 3, roll cut in halves; 4, half roll, improperly cut, showing how the roll will flatten out if portion is not left at end.

The roll is cut diagonally across as represented in the illustration, a small portion being left at each end to prevent the cotton from flattening out when being placed in the ear.

The ear is first thoroughly cleansed by the use of cotton-tipped applicators and, if need be, by the aid of hydrogen peroxide, followed by drying and whatever antiseptic the clinician prefers. The ear is grasped firmly and traction made backward and upward, thus straightening the canal, and with the other hand one half of the cotton roll is passed small end foremost into the canal until the tip touches the drum head, which can be determined by the twitching of the patient's face. It is essential that the tip touch the drum, for if not pus will accumulate between the drain and the drum, and will not be removed with the drain as is the case when the drain is properly placed.

The drain should be changed as often as it becomes saturated, which can be determined by the center of the roll becoming yellow. At this time the drain should be changed, not waiting until the pus has soaked through the sizing to come in contact with the skin of the canal. In this way the pus is confined to the area near the drum, thus preventing maceration, excoriation and infection of the skin of the canal and the region surrounding the ear. When the drains are first used they need to be changed frequently, sometimes as often as every fifteen minutes, until the accumulation of pus in the middle ear has

been removed, when the change will be required less often. The method of using these drains is so simple that any one can use them without the slightest chance of injuring the ear in any way.

411 Selling Building

INFANTILE KALA AZAR IN SYRIA*

JOSEPH K. HITTI, M.D., BEIRUT, SYRIA

Infantile kala azar has been reported in such Mediterranean countries as Italy, Greece, Malta and Crete, but no one has thus far reported its presence in Syria, although certain leading clinicians have suggested that possibility. Eighteen months ago I admitted to the pediatrics service of the American University Hospital S. Z., a boy, aged 7, who had been suffering for eight months from a chronic irregular febrile disease. The character of the fever curve and the laboratory exclusion of Malta fever and malaria made me suspect kala azar. The treatment consisted chiefly of antimony and potassium tartrate intravenously. The patient made a complete recovery. Although splenic puncture was not permitted for the demonstration of Leishman-Donovan bodies, a diagnosis of kala azar was recorded.

K. N., a boy, aged 7, was admitted, January 2, 1926. The examination for malaria and the agglutination tests for typhoid and Malta fever infections were negative. The type of fever curve, the high mononucleosis and the chronicity of the case without response to the thorough quinine treatment before admission to the hospital made me treat the case with antimony and potassium tartrate as probably kala azar. The boy left the hospital after two weeks' stay, to continue his treatment in the outpatient department.

G. D., a boy, aged 6 months, who weighed 10 Kg., was admitted, April 9, 1926, with high fever and enlarged spleen, which conditions were unaffected by quinine. Kala azar was suspected. Puncture of the tibia was made, and the marrow was found by microscopic examination to contain quite a number of Leishman-Donovan bodies. The baby was discharged, May 25, completely recovered. A transfusion of 80 cc. of blood was given in the course of the treatment with antimony and potassium tartrate.

May 10, 1926, another boy, H. A., aged 1 year, who had been suffering from irregular fever for six months, was admitted. The abdomen was very large, because of enlargement of the liver and spleen. Splenic puncture was made and Leishman-Donovan bodies were found in abundance. Although he was given massive doses of antimony and potassium tartrate intravenously and in the superior sigittal sinus, he was discharged after three weeks unimproved.

N. M. E., a baby, aged 9 months, was admitted, May 25, 1926, and by splenic puncture made on the same day Leishman-Donovan bodies were found. Treatment in the superior sagittal sinus with antimony and potassium tartrate was very efficient, the fever having remitted after two weeks' treatment.

SUMMARY

1. Kala azar is found in Syria and is being confused with malaria or Malta fever.
2. My five patients were males, which is interesting in view of Laveran's[1] statement that it is scarcely possible that sex is a factor in the disease.
3. The last three patients were given antimony and potassium tartrate solution in the sinus of the dura without any serious after-effects.

* From the Department of Practice of Medicine, American University of Beirut School of Medicine.

1. Laveran, A.: Leishmanioses, Paris, Masson & Cie, 1917, p. 76.

Coincident Ulcers.—It is often very difficult from the patient's history and ordinary clinical examination to be sure whether he is suffering from a gastric or a duodenal ulcer, or both. When, however, the pain comes on at varying intervals after food, whilst still displaying the periodicity so constantly found with ulcer, one has some grounds for suspecting that ulcers may be present in both stomach and duodenum.—Wilkie, D. P. D.: *Brit. M. J.*, Sept. 11, 1926.

Physical Therapy

THE FOLLOWING REPORT HAS BEEN APPROVED BY THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION.

H. J. HOLMQUEST, SECRETARY.

REPORT OF COMMITTEE ON PRESENT STATUS OF PHYSICAL THERAPY

Physical therapy is a term employed to define the treatment of disease by various nonmedicinal means. It comprises the use of the physical, chemical and other properties of heat, light, water, electricity, massage and exercise. There are certain definite indications for the use of some one or a combination of several of these physical agencies in the treatment of disease, but to depend on these agencies solely, to use them in lieu of better proved methods, or to employ them without having first thoroughly studied the patient from the standpoint of diagnosis, is harmful practice.

Some physical agencies may be used on the theory that "they will do no harm and may do some good." The psychologic element in their use impresses the patient, usually beneficially but occasionally to his detriment. The use of a certain method may become a habit with the patient, the physician or the technical assistant, so that the course of treatment is prolonged unduly. Again, manufacturers' agents—salesmen absolutely untrained in medical science—visit physicians, extolling the virtues of special physical apparatus, making unfounded claims as to curative values, and emphasizing the money-making powers of these methods of treatment.

Physical therapy came into its legitimate place in medicine during the World War. Today it is gradually taking its place with the usual medical and surgical procedures. But unless we guard against bad habits in its usage, against allowing it to replace careful diagnostic measures followed by well defined but less spectacular methods of treatment, and especially unless we guard against its insidious tendency to make its master an easy living, physical therapy may lead into dishonest practice or quackery.

The physical measures that have been found to have certain therapeutic value both by long clinical experience and by laboratory research include:

1. *Heat, Natural and Artificial.*—Diathermy, hot dry packs, hot water bottle, electric pads, and the combination of heat with light and of heat with hydrotherapy.
2. *Hydrotherapy.*—Hot and cold packs, hot and cold douches, whirlpool baths, swimming pool.
3. *Light.*—Heliotherapy or sunlight; artificial light, as that from a mercury arc quartz lamp, air or water cooled, a carbon or modified carbon arc lamp, and an incandescent lamp; gamma rays of radium; roentgen rays.
4. *Electricity.*—Galvanic, faradic, and sinusoidal currents, static electricity, ionization and combinations of these.
5. *Massage.*—Manual percussion, stroking, sedative type, brisk kneading type, manipulative as in stretching, pulling and corrective manipulations.
6. *Therapeutic Exercises.*—Muscle training exercises, passive and active, mechanotherapy, occupational therapy, games.

Physical therapy is at present in a transitional stage. Its use is extending, but it is still violently condemned in toto by some physicians. Experience indicates that a selected combination of physical measures offers the best results in certain pathologic conditions; in other

conditions such measures serve as a beneficial adjunct to the usual medical and surgical treatment. Above all, continued treatment by physical measures seems to result in better functional results than when patients are left to their own devices in securing restoration of function.

Many physical measures, however, have served as the chief armamentarium of quacks and charlatans in the past. Moreover, with renewed interest in this subject, cultists have adopted physical measures and have made extravagant unscientific claims as to their value. The avidity with which some have seized on physical therapy solely as a means of financial gain has disgusted most conscientious practitioners of medicine.

The Council on Physical Therapy feels that the following considerations must receive the most careful attention of the medical profession:

1. Physics, physiology and biochemistry must be called on to dispel the empiricism of the past and to prove the true scientific value of various physical agencies.

2. Physical therapy must be recognized as a definite part of medicine, practiced and controlled by graduate physicians. It should be used only as one of the triad of medicine, surgery and physical therapy. It should be prescribed only after careful physical and laboratory examinations of the patient have been made. It should never be prescribed except by a physician thoroughly trained in the use of physical agencies.

The treatment of disease, whether by drugs, surgery or physical agents, belongs solely in the realm of medicine. A physician would not refer a patient to a nonmedically trained technician for treatment by either drugs or surgery. Yet many physicians may refer patients to technicians—masseurs, gymnasts or nurses who have received training in physical therapy, or even to members of various cults for physical therapeutic treatment.

Therefore physical therapy must be recognized as a component part of medicine, and patients requiring this type of treatment should be referred only to physicians trained in this specialty. In this way the use of these methods by charlatans will be largely eliminated.

3. Since physical therapy is a definite part of medicine, every medical school should give a thorough training in this subject. The paucity of postgraduate and undergraduate instruction in physical measures in our medical schools has placed the profession at a disadvantage. Many attempts have been made to remedy this situation. A subject as intricate as physical therapy requires more study than a salesman's assertion that the snapping of a switch or the pressure of a button will definitely assuage any pathologic change.

The making of physical therapists by courses of one or two weeks, often reeking with commercialism, must be condemned. The three to six weeks' courses, sponsored by reputable medical schools, are frankly makeshifts, but do serve to show the would-be physical therapist the breadth of the subject. At least they effect the realization that such a period suffices only for establishing the purely mechanical details of technic and the broader physiologic groundwork on which, aided by his medical knowledge and common sense, one may attempt to erect a physical therapeutic superstructure. The remedy is adequate instruction to undergraduates in the medical schools. Courses starting with biophysics should be given in the last three years. In the postgraduate schools, more intensive and prolonged courses should be offered. Medical societies should invite physicians specializing in physical measures to give sane, scientific courses in physical therapy to their members. A fair proportion of the scientific programs of medical societies should be assigned for discussion of physical measures of treatment.

4. Persistent, prolonged effort must be made to eradicate the abuses of physical therapy. A physician who has installed a diathermy machine or an ultraviolet ray generator can do good in carefully selected cases with one of these methods. He is not, however, fully equipped to render physical therapy. As a rule it is the careful combination of several physical agencies that gives the best results. Again, physicians must guard against the overenthusiastic use of new instruments and the treating of cases for prolonged periods by nurses, technicians or office assistants.

The training of technicians should be encouraged, for trained technicians are invaluable to physicians specializing in this field. But technicians should be discouraged from establishing individual plants, even though the major part of the work is referred by physicians.

The "treatment habit" is a menace, prevalent in general practice and reaching its zenith in the physical therapeutic departments of civil hospitals. Undesirable and incurable patients may be easily referred to the physical therapy departments, where they remain long after attaining maximum improvement, to the great disadvantage of acute cases urgently needing such treatment to shorten their time of disability and to secure functional restoration. Under most industrial compensation laws the treatment habit tends to become firmly fixed.

The Council on Physical Therapy of the American Medical Association will endeavor to point out to the medical profession the advantages and the disadvantages of physical therapy so that its abuses may be reduced to a minimum, and its scientific possibilities may be appreciated.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

OVARIAN SUBSTANCE SOLUBLE EXTRACT-P. D. & CO.—A solution of an extract of desiccated beef and hog ovaries in physiological solution of sodium chloride, each cubic centimeter containing 0.04 Gm. of soluble extract, preserved by the addition of 0.5 per cent of chlorbutanol.

Actions and Uses.—See Ovary, New and Nonofficial Remedies, 1926, p. 269.

Dosage.—One cubic centimeter at intervals of one to two days.

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

Ampules Ovarian Substance Soluble Extract-P. D. & Co., 1 cc.

Ovarian substance soluble extract-P. D. & Co. is made by extracting desiccated ovarian substance with water slightly acidulated with acetic acid, containing 0.5 per cent of chlorbutanol. The extract is filtered, concentrated in a vacuum at low temperature and precipitated by a solvent miscible with the solution, such as alcohol or acetone. The precipitate is collected, dried at a low temperature and dissolved in physiological solution of sodium chloride so that each cubic centimeter contains 0.04 Gm.

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SATURDAY, OCTOBER 16, 1926

THE DANGERS OF PERVERTED APPETITE

Abnormalities of appetite involve a considerable variety of peculiarities in food intake. Aversion to food may range in intensity from the ordinary anorexia, or loss of appetite, that is familiar to physicians, to an extreme loathing for food. A recent writer has remarked that bulimia, or increase of appetite, is certainly not abnormal so long as it is a simple demand for increased food, as in convalescence; although it might be described as perverted at the court of the emperor Nero, where decadent diners retired for emesis between courses. The "craving sensation" common in catarrhal gastritis and temporarily relieved by eating, and the similar sensation observed in worm infections in children, we are further reminded, are commonly attributed to irritation of the intestinal tract, without further attempt to relate clinically observed effect with physiologic cause.

Such abnormalities are quite distinct, however, from the well defined perversion of appetite usually referred to as "pica" and manifesting itself as an allotriophagia, or habit of eating miscellaneous indigestible material. It is occasionally observed among the hysterical and the insane, but even more normal persons may exhibit aberrant modes of eating.

Green [1] has asserted that a depraved appetite is a common symptom in chlorosis, apparently manifesting itself as a craving for sour-tasting substances in most cases, but frequently also as a craving for chalk, earth, or other substances that suggest no clue to a rational physiologic explanation of the phenomenon. His own studies on osteophagia, or bone eating, by cattle in certain regions of South Africa—a perverted appetite due to a craving for phosphorus—may lead to the chance intake of toxigenic agents. The devastating bovine disease lamziekte has been brought about in this way. Decaying skeletal débris carrying harmful material is left untouched by normal cattle, and eaten only when depraved appetite is shown; hence osteophagia is a necessary precursor of lamziekte, which does not occur if depraved appetite is prevented. The correction of the perverted appetite facilitates the control of the lamziekte.

A somewhat comparable danger of pica in children has recently been described by McKhann [2] of the Harvard Medical School in Boston. In consequence of a perverted appetite they may ingest sand, coal, cloth, hair and paint, the last chewed from toys, cribs and woodwork. The derangement of appetite may be only habit, or it may result from gastro-intestinal disturbances, intestinal parasites, mental deficiency or neurosis. This pica is the most frequent forerunner of lead poisoning, as it is of relatively common occurrence and may result in the repeated ingestion of small amounts of lead. Weeks may elapse before symptoms arise, and the perversion of appetite is passed over lightly or not mentioned by the parents, who have become accustomed to the strange habits of the child. The highly fatal lead encephalitis in consequence is by no means unknown. Fortunately, the newer forms of treatment,[3] involving the administration of calcium, which favors the storage of lead in inert forms in the bone, seem to be effective in alleviating symptoms. The fact that a single children's clinic [2] can record seventeen cases of lead poisoning within less than three years attests the dangers involved. Pica, or perverted appetite, surely deserves more serious attention.

1. Green, H. H.: Perverted Appetites, Physiol. Rev. 5:336 (July) 1925.

2. McKhann, C. F.: Lead Poisoning in Children, Am. J. Dis. Child. 32:386 (Sept.) 1926.

3. Aub, J. C.; Fairhall, L. T.; Minot, A. S., and Reznikoff, P.: Lead Poisoning, Medicine 4:1 (Feb.-May) 1925.

"BEFORE AND AFTER TAKING" BRADSTREET

It has been said with more feeling than justice that the photographer is the most convincing liar a man can hire. Like most broad generalizations, this is untrue; also it is unfair to a worthy and sincere craft. To state, however, that certain photographers, with the help of unscrupulous advertisement copywriters, may become convincing liars is strictly within the facts. Those who have studied the devious ways used by unprincipled photographers and photo-engravers have long known that many of the striking pictures used by the quack are records of photographic finesse rather than of fact. The pictures of the obese female before and after taking some widely advertised antifat may carry conviction to the unsophisticated or to those in whom the wish to reduce is father to the thought, but they mislead no one who is familiar with modern advertising methods. The same is true of those interesting, if unconvincing, series of pictures showing the bald-headed pilgrim's progress from a condition of shiny alopecia to that of luxuriant hirsuties.

Not often are these inner secrets of the temple of quackery disclosed to the vulgar gaze. Recently a conspicuous specimen has come to light. Students of contemporary charlatanism are familiar with the advertising efforts of one Hobart Bradstreet of Chicago. This genial quack puts forward the thesis that we grow

old because of the "settling of the spine," which results, according to the Bradstreet anatomic conceptions, in the vertebrae "crowding" the spinal nerves. A thesis is worth little commercially unless it is applied, and Mr. Bradstreet capitalizes his theories by selling an alleged course in "spine motion"—every man his own chiropractor, so to speak.

But all the quack courses in the world would fail to enrich their authors were it not for the skill of the modern advertising man. Bradstreet, knowing his "stuff," realizes this and enlisted the aid of an advertising copywriter to carry the "spine motion" message to that large class responsible for Mr. Barnum's prosperity. One of the skilful pieces of advertising copy prepared for Mr. Bradstreet was a "Before and After Taking" picture. The "before taking" picture showed a man with a face heavily lined, obviously aged before his time. The "after taking" picture purported to be the same man photographed after taking a five weeks' course in "spine motion." The lines of age were gone! The public might have continued to be regaled by this peculiarly persuasive advertising were it not for the activities of the Federal Trades Commission. This body, a few weeks ago, issued a formal complaint, declaring that Bradstreet and his advertising agent had "unlawfully conspired and agreed together to deceive and defraud the public." The commission pointed out that the "before and after" pictures were taken not five weeks apart, but a few minutes apart, and that the individual who sat for the pictures was a clothing salesman who eked out his income by acting as a model for illustrations of men's suits, overcoats and other apparel. He was, moreover, wholly ignorant not only of Bradstreet and his "spine motion" but of the fact that his picture was going to be used as a before and after affair.

But Mr. Bradstreet and his advertising agent did not stop at anything so elementary as a "before and after" picture. One of the most effective pieces of photo-literary hokum used by the "spine motion" artist was a full page advertisement entitled "Bride and Groom." This presented in picture form a white-haired dignified bridegroom of advanced age against whose shoulder leaned a good-looking young bride. The groom, according to the advertisement, was Colonel Bemis, who was in his fifty-eighth year, while the petite bride was said to lack a few days of being twenty. In order doubtless to furnish the aphrodisian element so effective in quackery, the bride was pictured as saying: "The Colonel may look his age, but by all that's remarkable he doesn't act it—nor feel it, if his enthusiasm is any indication." The advertisement went on to enlarge on the alleged cause of the colonel's youthful "enthusiasm." This, it seems, was due wholly to the course in "spine motion" that he had taken under Mr. Bradstreet's direction. A pretty yarn but one that was sadly punctured by the Federal Trades Commission. This iconoclastic aggregation declared that the "colonel" of the picture was not a colonel but a jewelry salesman who occasionally earned a more or less honest penny as a model. The "bride" was a professional model of 18. Neither the "bride" nor the "groom" had ever heard of Hobart Bradstreet until they read the advertisement in which their pictures appeared!

'Tis a hard world. If the Federal Trades Commission is going to insist on the truth in advertising representations, how is a hard-working quack going to make a living?

GAS CYSTS OF THE INTESTINES

Many times at operation or necropsy, cysts containing gas under pressure have been found unexpectedly in the intestinal walls, in the mesentery or elsewhere about the peritoneal cavity. They are thin walled, single or in clusters, of different sizes, and sometimes contain blood or lymph. Similar cysts have also been observed in the vaginal wall during pregnancy. The more or less complete endothelial lining varies from a nearly normal to a greatly thickened plasmodial layer on a loose, fibrous, proliferative connective tissue, rather vascular and containing plasma cells, round cells, polymorphonuclear leukocytes and often mast cells and eosinophils. The physiologic relations are unknown.

Discovered by chance at laparotomy to relieve certain gastro-intestinal symptoms, the cysts have sometimes been resected and the patient apparently cured thereby, while in other cases, although left untouched, they have been found at a later laparotomy or at necropsy to have disappeared. Cysts which seemingly are identical are found in other species, especially in sheep and swine. In man the occurrence is most frequent in middle-aged men, and in more than 50 per cent of the observed cases the cysts have been associated with gastric or duodenal ulcer. From this coincidence and the assertion that they are more frequent in swine fed on milk or milk products, Masson [1] has developed a theory that carbon dioxide held in combination by an excess of acid, probably lactic, is absorbed from the intestine, is then freed by the neutralizing action of the blood and lymph, and so accumulates within dilated lymph vessels. By diffusion with other gases the composition is modified and, as usually given, contains from 73 to 90 per cent of nitrogen, from 5 to 20 per cent of oxygen, from 0 to 20 per cent of carbon dioxide, and sometimes traces of hydrogen and methane.

Other theories hold that cysts are formed by the mechanical propulsion of air or gas through the intestinal wall; that they are true tumors whose enlarged endothelial cells secrete the gas; [2] that they are the result of obstruction to blood and lymph circulations because so frequently associated with partial or nearly complete occlusion of the intestine, and that they are formed by bacteria within the tissues. Much conflicting evidence

1. Masson, P.: Na lymphopneumatose kystique, Ann. d'anat. path., med.-chir. **2**: 54, 1926.
2. Welch, W. H., quoted by Finney, J. M. T.: Gas Cysts of the Intestine, J. A. M. A. **51**: 1291 (Oct. 7) 1908.

is given regarding the bacterial theory. Naeslund [3] has supported it. From the walls of cysts from swine, he isolated an organism of the *B. coli* group, *Bacterium pneumatosis,* which gave positive immune reations with the blood serum of affected swine, produced the typical pathologic changes when injected into rabbits and guinea-pigs, and in cultures produced gas containing carbon dioxide and oxygen in practically the same proportions found in gas from cysts opened under water and not exposed to air (carbon dioxide, 0.3 per cent, and oxygen, from 0.5 to 1.4 per cent). Exposure of the cysts to air increased the oxygen content to as high as 20 per cent, and exposure in carbon dioxide increased the content of that gas to nearly 95 per cent.

The subject is interesting for its possible significance in clinical conditions, the failure to diagnose the cysts, their spontaneous disappearance, and for the suggestions regarding the permeability of the intestine for bacteria, and absorption, release and diffusion of gases. Increasing attention has been paid to the condition within the last few years. It should be kept in mind for recognition at laparotomy and necropsy, and also seems worth further experimental investigation.

THE RETICULO-ENDOTHELIAL SYSTEM AND THE ORIGIN OF PHAGOCYTIC CELLS

Conceptions of the mechanism of phagocytosis seem to vary with geographic location and the school of pathology with which the investigator may be affiliated. In a recent consideration of the source of phagocytic cells, Eliot [4] points out that they have been assumed to take their origin in the reticulo-endothelial system. In the order of increasing phagocytic properties, as generally recognized, these cells include "ordinary endothelial cells, fibrocytes, reticular cells of the spleen and lymphoid tissues, the reticulo-endothelium of the spleen, lymph and marrow sinuses, of the lung, suprarenal and hypophysial capillaries, the Kupffer cells of the liver, the histiocytes or clasmatocytes, and the splenocytes and blood monocytes." [5] Eliot offers evidence, however, to prove that the reticulo-endothelial system is composed largely of phagocytic white blood cells. After ingesting particles of carmine, used as a test dye in these experiments, they seem to have migrated from the blood stream and to have become transformed into other forms.

Experiments were made on two series of rabbits. A suspension of powdered carmine was injected into the marginal ear veins of one series, and at intervals blood withdrawn from these rabbits was examined for phagocytic cells. After the same intervals, animals of this series were killed and search was made for phagocytic cells in their tissues. Only five minutes was allowed to elapse before blood was withdrawn from the heart of the first rabbit to be examined. A portion of this blood was reserved and was introduced into the marginal ear veins of the animals of the second series, precaution being taken that all carmine was bound in the cells of the injected blood and that particles were not free in the injected plasma. These rabbits were then subjected to an examination similar to that given to their fellows of the first series.

Five minutes after carmine had been injected into rabbits of the first series, nearly all the polymorphonuclear cells and monocytes in a sample of blood drawn from the heart contained carmine granules. Other carmine-laden polymorphonuclears and monocytes filled the capillaries of the lungs. The dye was not found in the epithelial or endothelial cells. Other rabbits were examined after injection at intervals of one hour, twenty-four hours, forty-eight hours and five days, respectively. In general, as more time elapsed a decreasing number of carmine-bearing cells was found in the circulating blood, and an increasing number of such cells, first in the lungs, and then, progressively, in the liver, spleen and celiac lymph nodes. At first, the cells containing carmine granules were unmistakably polymorphonuclears and monocytes. Later, they became difficult to distinguish from typical cells of the endothelial system, but the distinction could be made. At last, the dye was contained in the lungs in large epitheloid cells, in the spleen in splenocytes and macrophages, in the liver in Kupffer cells, and in the celiac lymph nodes in large hypertrophied mononuclears. In other words, the carmine was finally found deposited in cells of the so-called reticulo-endothelial system.

In the second series of animals, into which free carmine had not been injected but which had received injections of carmine "marked" polymorphonuclear cells and monocytes, the location and appearance of the marked cells was almost identical with the picture presented by the rabbits of the first series. That is, cells which were known to be carmine-containing polymorphonuclears and monocytes, when they were injected, ended their wanderings as components of the reticulo-endothelial system.

Certain possible objections are answered by the investigator. It might be held that the phagocytic cells in the blood stream were produced by a splenic "shower." However, such a reaction would produce a leukocytosis, and the fact is that a leukopenia followed the injection of the carmine. Apparently, cells had migrated out of the blood stream. Subsequently, they were found mainly in the lungs. Another possible source of argument is the fact that even after the first hour a few highly phagocytic cells not resembling blood cells and containing carmine are found in the liver and spleen. It might be assumed that the blood cells which first take up the carmine are ingested by preexisting clasmatocytes and that transformation of blood cells into clasmatocytes does not take place.

3. Naeslund, John: Zur Kenntnis der Pneumatosis Cystoides Intestinorum, Pathologisch-Anatomische und Experimentelle Studien, 1924.
4. Eliot, Calista: The Origin of the Phagocytic Cells in the Rabbit, Bull. Johns Hopkins Hosp. **39**: 149 (Sept.) 1926.
5. Endothelial System, Queries and Minor Notes, J. A. M. A. **86**: 1786 (June 5) 1926.

However, such a transformation was actually demonstrated in the living animal as well as in cultures of white blood cells. Again, the view may be put forward that the cells for which the author claims powers of phagocytosis and transformation and which are found in the blood stream may arise by proliferation of the endothelium of the capillaries and sinuses. If so, according to the experimental results, this proliferation must take place within the impossibly short period of five minutes. Furthermore, phagocytic cells found in the blood stream at the end of five minutes are blood cells and not endothelial cells. If this work is confirmed, a long vexed question will be nearer to settlement. The clinical pathologist will perhaps be able to abandon a number of fine drawn distinctions as to cellular types and origins.

Current Comment

THE CAMPAIGN AGAINST NOSTRUMS IN CENTRAL AMERICA

Other countries are gradually undertaking campaigns similar to those waged in this country against medical nostrums. A Nicaraguan pharmaceutic journal [1] refers editorially to the efforts made in Nicaragua to protect the public against such exploitation, pointing out that such products are manufactured in the United States only for exportation, their use being forbidden at home. The blame is placed on American "manufacturing houses which take advantage of the lack of protecting laws as well as the unscrupulousness of dealers." This protest is accompanied by the publication of the names of forty preparations whose sale has been recently forbidden in Guatemala, where this work has apparently been conducted more forcefully and efficiently. A glance at the list shows, among others, the only too familiar names of Ayer's, Bolet Peraza's, Bristol's, Doan's, Paul Ebrey's, Franklin's, "pinklets," Richard's, "sargol" and Williams' pills; Franklin's, Grant's and Lamman's tablets; Grant's electric oil; Ebrey's protargol ointment; hamamelis ointment; Ulrici's cerebrine cordial; methyloids, and trophonine. Another Central American periodical [2] has considered the same question, publishing the regulations recently adopted by Guatemala in order to combat this deep-seated evil. The pharmacy school has led the campaign and a "patent medicine" commission has already been officially appointed to supervise and control the sale of such products. In Guatemala they have used extensively and efficiently the propaganda material issued by the Bureau of Investigation of the American Medical Association. The work accomplished by the Association is called truly praiseworthy and altruistic. There is little doubt that our Central American friends are on the right path. The interest of some local newspapers has been actively engaged and the government is backing the present campaign. Of course, opposition is to be expected on the part of those whose incomes are threatened. It is unnecessary to add that American physicians will watch sympathetically these efforts to bar quackery and will render any assistance in their power.

1. Revista Farmacéutica de Nicaragua **4**: 970 (March 1) 1926.
2. González, Octavio: Las Especialidades Farmacéuticas, Studium **4**: 28 (July-December) 1925.

BURNS AND THE SUPRARENALS

Clinicians recognize that the effects of severe burns may be out of all obvious proportion to the tissue injury at the site of the harm. In some cases of extensive but superficial burns, death may ensue apparently as the result of some sort of profound intoxication. The abnormal manifestations that have been detected under such circumstances are exceedingly varied and can scarcely be formulated from any single general point of view.[1] Concentration of the blood may also occur suggestive of a disturbance in the water equilibrium of the body. Degenerative changes in several organs have been recorded. Recently Hartman, Rose and Smith [2] of the University of Buffalo have demonstrated an increased output of epinephrine from the suprarenals within a few minutes after burns occur, even in conditions of anesthesia. The increase may persist for several hours. Under such circumstances a depletion of epinephrine and of lipoids in the suprarenals may result. The demonstration that burns cause an excessive activity of these glandular structures may help to explain some of the manifestations that have been difficult to interpret. The severe degenerative changes described have been compared to the demonstrated occasional comparable effects of diphtheria intoxication.[3]

THE FACTS OF SCIENCE

The history of scientific medicine is as romantic a tale as ever attracted the notice of novelist or poet. Numerous writers have already told the stories in many forms, and the public begins to appreciate more and more what medicine has accomplished. The records of achievement are to be found first, of course, in the scientific language of original investigators published in the technical periodicals devoted to medical progress. From these first-hand accounts medical historians, public health educators, leaders in medicine, novelists and writers on medicine for the press have derived the information which they retell in more understandable if not more fascinating form to an interested public. When "Microbe Hunters," by Paul de Kruif, recently appeared, the book was welcomed as a most readable account of the work done by great investigators in the fields of bacteriology and insect-transmission of disease. A few critics—notably reviewers in THE JOURNAL and in *Hygeia*—were inclined to doubt the desirability of the flippant journalese in which most of the book was phrased, and to question the reproduction of imaginary conversations in slang and dialect alleged to have taken place in the laboratories and jungles where microbe hunters sought their prey. The gospel of microbe hunters is facts, and it is on facts that de Kruif repeatedly places his emphasis in eulogizing

1. A discussion of the symptoms is given by Wells, H. G.: Chemical Pathology, ed. 5, Philadelphia, W. B. Saunders Company, 1925.
2. Hartman, F. A.; Rose, W. J., and Smith, E. P.: The Influence of Burns on Epinephrine Secretion, Am. J. Physiol. **78**: 47 (Sept.) 1926.
3. Weiskotten, H. G.: Fatal Superficial Burns and the Suprarenals, J. A. M. A. **69**: 776 (Sept. 8) 1917; Histopathology of Superficial Burns, ibid. **72**: 259 (Jan. 25) 1919.

Koch and Roux and Grassi and others. "The facts of science," he would have Grassi say, "are greater than the little men who find those facts." And now in a letter published in this issue of THE JOURNAL, Ross, Nabarro, Low, Castellani and Christy urge that the de Kruif account of their work is "apocryphal" and drawn "almost only from his own imagination." The history of medicine is as romantic a story as the novelists might tell—but if it purports to be history it should not be too romantic.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Fees for Treatment of Injured Workmen.—A committee of the Arizona State Medical Association, appointed by the house of delegates, and the Arizona Industrial Commission have agreed on a schedule of fees to be paid physicians for the treatment of injured workmen under the state compensation law. The schedule of fees, published in *Southwestern Medicine*, September, is said to be the "most liberal industrial fee schedule ever granted." It is not contemplated that the maximum fee, as published, shall be charged in all cases. The schedule is applicable to injuries sustained on or after Nov. 3, 1925.

Dr. Wright Resigns.—After a continuous service of twenty-four years as surgeon at the smelter of the Calumet and Arizona Mining Company at Douglas, Dr. Frederick T. Wright resigned, September 30, and will retire from practice. Dr. Wright came to Douglas in 1902 from Michigan, and for the first ten years did the medical work at the smelter alone; Dr. Carl H. Lund, who, since 1912, has been his associate, is also leaving the hospital to engage in private practice. The Calumet Hospital will hereafter be operated as a part of the mining organization. Dr. Edward W. Adamson, who will assume the management, will be assisted by Dr. Hugh M. Helm, formerly of Nacazario, Mexico.

CONNECTICUT

Study of Mind of Normal Infant.—An announcement, October 10, stated, it is reported, that the Yale Psycho-Clinic for Infancy Research will devote itself for a period of years to the study of mental development in normal infants. A preliminary investigation of "ten levels of development" from birth to 6 years of age has been completed at the clinic, it is said, and a manual of developmental diagnosis published; the problems to be taken up now include, among others, an investigation of the nature and origin of individual differences, correlations with physical characteristics, variations in rate of mental growth, and methods of developmental diagnosis in infancy. New appointees to the staff of the clinic are said to be Henry M. Halverson, Ph.D., of the University of Maine; Dr. Marian C. Putnam, formerly of the Boston Children's Hospital, and Helen Thompson, Ph.D., formerly research assistant at the Lincoln School Teachers College, New York.

DELAWARE

State Medical Meeting.—At the one hundred and thirty-seventh annual meeting of the Medical Society of Delaware, Dover, October 12-13, under the presidency of Dr. John B. Derrickson, Dr. Wendell C. Phillips, New York, President of the American Medical Association, gave an address; Frederick L. Hoffman, Newark, N. J., read a paper on "Fallacies of Birth Control"; Dr. Sara Josephine Baker, New York, on "Prevention of Maternal and Infant Mortality"; Dr. Hannah M. Stone, New York, on "Contraceptive Methods of Choice"; Dr. Lawrence D. Phillips, Dover, "Points to Be Remembered in the Diagnosis of Tuberculosis"; Dr. William F. Bonner, Wilmington, "Ocular Fields in Syphilis."

FLORIDA

County Society Reorganized.—In response to invitations mailed by the president of the Florida Medical Association, Dr. Henry Mason Smith, members of the De Soto County Medical Society and physicians from Hardee and Highlands counties met, August 28, at the Hotel Sebring. A reorganization of the De Soto County Medical Society was effected, in which physicians of De Soto, Hardee and Highlands counties joined to form the De Soto-Hardee-Highlands County Medical Society; Dr. Daniel L. McSwain was elected president; Dr. Howard V. Weems, vice president, and Dr. Isaac W. Chandler, secretary-treasurer. Dr. Smith gave an address on "Organized Medicine"; he stated that a bill is being drafted with the help of the state board of health which will prohibit all except bona fide graduates of medicine using the term "M.D."

Additional Arrests in Diploma Mill Investigation.—A newspaper report from Tampa states that postal inspectors arrested "Dr. W. M. Sharpe," St. Petersburg, October 2, and placed him in jail in default of $3,000 bond on a charge of using the mails to defraud and of conspiring with Dr. George A. Munch, Tampa, in connection with the alleged medical diploma mill investigation. Sharpe is said to have been arrested through information found in records of the Florida Medical Board of Eclectic Examiners, of which Dr. Munch formerly was secretary. C. C. Faiman, formerly of Chicago and notoriously associated with the William B. Sheppard-McClintock trial, was arrested in Panama City, it is reported, a few days ago, charged with purchasing a fraudulent medical license, and was placed in jail at Marianna under $3,000 bond. The third man arrested was "Dr. John J. Heitz" of Orlando, who was released under bond of $3,000. There is no record in the American Medical Association headquarters of doctors of medicine by the names of William M. Sharpe and C. C. Faiman. There is a record of a John J. Heitz graduating from the notorious St. Louis College of Physicians and Surgeons in 1920, but no record of his being licensed to practice; he failed to pass the Colorado State Board of Medical Examiners in October, 1920.

ILLINOIS

Hospital News.—The new addition to the Adams County Tuberculosis Sanatorium, Quincy, was opened about October 1; it will accommodate twenty-six patients.——Dr. George W. Campbell recently reopened the Flora Hospital, Flora, which has been remodeled after a fire.

Personal.—Dr. William S. McGinnis has been appointed plant physician for the American Smelting and Refining Company, Alton, to succeed Dr. Gary T. Gossard, who is moving to Los Angeles.——Dr. Harry C. Gebhart, Oak Park, has accepted a position in the health department of the University of Illinois.

Chicago

Personal.—Arthur H. Compton, Ph.D., professor of physics, University of Chicago, and a member of the Council on Physical Therapy of the American Medical Association, has been elected a member of the R. Accademia Nazionale dei Lincei at Rome.——Dr. George de Tarnowsky has resigned from the faculty of Loyola Medical School and accepted an appointment as associate professor of surgery at the University of Illinois School of Medicine.

Liquor Licenses Revoked.—The local prohibition administrator recently issued orders revoking the liquor licenses of the following, it is reported, for the reasons indicated:

Dr. Annie A. Anderson, failed to keep proper records, issued prescriptions in an unlawful manner, issued prescriptions to fictitious names and addresses.

Dr. William J. Mitchell, failed to keep proper records, issued prescriptions unlawfully, conspired to divert nonbeverage liquor to beverage purposes.

Dr. Harry A. Roach, failed to keep proper records, issued prescriptions in an unlawful manner, knowingly diverted intoxicating liquor from nonbeverage to beverage purposes.

Dr. Leonard M. Thompson, failed to keep proper records, issued prescriptions unlawfully, conspired to divert nonbeverage liquor to beverage purposes.

Dr. Carl O. Young, irregular issuance of prescriptions, failure to keep proper records.

Society News.—The Chicago Pathological Society met at the Crerar Library, October 11; among others, Dr. Roy S. Leadingham read a paper on "Carcinoid of the Appendix Vermiformis."——Miss Annie Goodrich, dean, School of Nursing, Yale University, will speak on "Some Newer Branches of Nursing for Community Service" at a luncheon of the Central Council for Nursing Education, at the Casino Club, October 21.——The Chicago Surgical Society held a special meeting, October 11, at the University Club; the speakers were Dr. S. Sampson Handley, London, England,

and Dr. Roberto Alessandri, Rome, Italy.——The staff of the Cook County Hospital held an open meeting in the medical amphitheater, October 14, to which all members of the profession were cordially invited.——Dr. Friedrich von Muller, professor of medicine, University of Munich, gave an address at the University of Illinois College of Medicine, October 13, on "Metabolic Disorders."——Mr. Anthony Czarnecki, collector of port, U. S. Customs, addressed the Physicians' Fellowship Club, October 15, at the Logan Masonic Temple, 2451 Kedzie Boulevard, on "Resuming Activities."

INDIANA

Typhoid Outbreak.—About twenty-five cases of typhoid were reported from Elwood, September 20, due, it was said, the drinking of contaminated milk; eighteen patients were regular customers of the same dairy, and the other patients are said to have used milk from that dairy occasionally.

State Medical Election.—At the recent annual meeting of the Indiana State Medical Association, West Baden, Dr. Frank W. Cregor, Indianapolis, was installed as president, and Dr. George R. Daniels, Jr., Marion, elected president-elect; Dr. William A. Doeppers, Indianapolis, treasurer; Mr. T. A. Hendricks, Indianapolis, secretary, and Drs. Harry Elliott, Brazil, and David Ross, Indianapolis, delegates to the American Medical Association. Dr. Eldridge M. Shanklin, Hammond, was elected delegate to fill the unexpired term of the late Dr. George F. Keiper.

Society News.—The Newton-Jasper Medical Society was entertained by Dr. and Mrs. Wilbur C. Mathews, August 26; Dr. Alfred Henry, Indianapolis, addressed the society and demonstrated the use of artificial pneumothorax in pulmonary tuberculosis.——Dr. Julius H. Hess, Chicago, addressed the Lake County Medical Society, Gary, September 9, on "Present Day Status of Infant Feeding."——Dr. Ralph C. Hamill, Chicago, addressed the Tippecanoe County Medical Society, Lafayette, October 14, on "Mental Disease," and held a clinic at St. Elizabeth's Hospital in the afternoon.

Dr. Porter Honored.—About 200 physicians from Ohio, Michigan and Indiana attended a banquet at the Mizpah Temple, Fort Wayne, September 28, in honor of Dr. Miles F. Porter, Sr., on the occasion of his seventieth birthday. Dr. Charles P. Emerson, dean of the Indiana University School of Medicine, was toastmaster, and among the speakers were Drs. Edmund D. Clark and John H. Oliver, professors of surgery at the Indiana University School of Medicine, and Dr. Franklin H. Martin, Chicago. Dr. Porter began the practice of medicine in Fort Wayne forty-six years ago; he was for eight years a trustee of the American Medical Association, and formerly president of the Indiana State Medical Association.

IOWA

Personal.—Dr. Hiram L. Youtz, Des Moines, has been appointed professor of hygiene and public health at the state college, Brookings, S. D., and will act also as college physician.——Dr. C. S. Stoakes, Battle Creek, for many years secretary of the Ida County Medical Society, was recently tendered a testimonial dinner; Dr. Stoakes is about to take up his new field of work at Dysart.

Iowa Heart Association.—The first annual report of the Iowa Heart Association notes that since the first of July (1925) thirty-one county clinics were held and 326 patients examined; heart disease was diagnosed in 201 cases, and 280 local physicians were present at these clinics. Twelve general news articles, syndicated throughout the state, were given a total space of about 10,000 inches in the newspapers; in various communities special local articles were published. There was a special clinic at the state fair held jointly by the Iowa Heart Association and the Iowa Trudeau Society, which was attended by a large number of physicians from various parts of the state.

KENTUCKY

State Medical Election.—At the annual meeting of the Kentucky State Medical Association, Frankfort, September 20-23, Dr. Irvin Abell, Louisville, was elected president; Dr. Robert Julian Estill, Lexington, president-elect; Drs. Claude G. Hoffman, Louisville, Joseph W. Nolan, Harlan, and T. L. Bailey, Madisonville, vice presidents; Dr. Samuel B. Marks, Lexington, orator in surgery, and Dr. Frank T. Fort, Louisville, orator in medicine. Mrs. W. M. Martin, Harlan, was elected president of the Woman's Auxiliary, and Mrs. Arthur T. McCormack, Louisville, secretary-treasurer. The next annual meeting will be held in Louisville.

LOUISIANA

Hospital News.—The Shreveport Charity Hospital is constructing two wards to replace those destroyed recently by fire.——The North Louisiana Sanitarium, Shreveport, will erect soon an addition of about twenty-five rooms; Dr. Ernst A. Schmidt, Denver, has taken charge of the roentgen-ray department of the sanatorium.

"Better Health" Train.—The Missouri Pacific Railroad is sending a special train of exhibit cars, lecture car, diners and sleepers, to visit sixty-three municipalities in Louisiana, to demonstrate to the public the methods of prevention of malaria and typhoid fevers. Representatives of the state board of health and of the U. S. Public Health Service, health officials of the railroad, the state agricultural department and others will accompany the train; lectures, illustrated by moving pictures, and exhibits will be given at each stop. The Missouri Pacific ran a similar train through Arkansas last year.

Personal.—Dr. Edwin B. Godfrey, director, Webster Parish Health Unit, has been appointed also city health officer of Minden.——Dr. Peter W. Holst, director, department of epidemiology, state serum institute, Oslo, Norway, and Dr. Marius Kaiser, director, infectious disease control, Central Health Service of Austria, were guests at a luncheon of the Louisiana State Board of Health, recently; others present were Dr. William H. Robin, superintendent of public health of New Orleans; Dr. Frank R. Gomila, secretary, New Orleans Board of Health; Dr. Peter F. Murphy, United Fruit Company; Dr. John McMullen, U. S. Public Health Service, and Dr. William H. Seemann, state bacteriologist.——Dr. John N. Thomas, superintendent, Central Louisiana State Hospital, Pineville, recently completed forty years' service to the state in various capacities.

MARYLAND

First Hospital for Negroes.—The Victory Hospital, the first hospital to be established in Baltimore exclusively for negroes, will open soon; appointments to the medical staff will be under the supervision of Dr. John M. T. Finney of Johns Hopkins Hospital, and, it is reported, they will be from the negro race.

Johns Hopkins' Fiftieth Anniversary.—The trustees and faculty of Johns Hopkins University, Baltimore, announce the celebration of the fiftieth anniversary at the Lyric Theater, October 22. The exercises will be commemorative of the formal opening of the new building of the school of hygiene and public health, which will be open for inspection. Governor Ritchie will deliver the address of welcome; there will be introductory remarks by Dr. William H. Welch and an address by Dr. Andrew Balfour, director, London School of Hygiene and Tropical Medicine, on "Hygiene as a World Force." Prof. F. Neufeld, director, institute of infectious diseases, Berlin, will deliver an address at 5 o'clock on "Variability of Bacteria, with Especial Reference to Infectious Diseases"; Saturday at 10:30, L. Lévy-Bruhl, professor of the history of modern philosophy at the Sorbonne in Paris, will give an address. There will be a garden party at Homewood in the afternoon.

School of Hygiene and Public Health.

MICHIGAN

Society News.—Dr. James H. Dempster, Detroit, was installed as president of the Wayne County Medical Society, September 21, and Dr. Richard A. McKean as secretary.

Dr. Kellogg's Anniversary.—The board of trustees of the Battle Creek Sanitarium, Battle Creek, gave a banquet in the main dining room, October 13, in commemoration of Dr. John Harvey Kellogg's fiftieth anniversary as superintendent of the sanatorium.

Diphtheria Prevention Campaign.—The Detroit Department of Health is launching an intensive diphtheria campaign to emphasize the necessity of giving toxin-antitoxin to all children between 6 months and 10 years of age and of giving the Schick test to those who have had toxin-antitoxin six months or more ago. There is to be a display of billposters, talks and the opening of eighteen health stations at which toxin-antitoxin will be given free of charge. The Metropolitan

and John Hancock Life Insurance companies will have representatives visit every home in the city to urge toxin-antitoxin to protect children from diphtheria; these representatives will leave a "diphtheria protection reference card" for parents to signify their consent to have the children immunized. THE JOURNAL, last week, published an item showing the high mortality rate in the present outbreak of diphtheria in Detroit.

MINNESOTA

Hospital News.—The Mankato Clinic, Mankato, formally opened its new clinic building, September 29. The clinic, organized Jan. 1, 1916, now comprises thirteen physicians and surgeons.

Personal.—Dr. Lee Monroe Miles, for many years associate in obstetrics and gynecology, Peking Union Medical College, China, has located in St. Paul, to engage in the practice of medicine.——Dr. Leo G. Rigler, Minneapolis, has gone to Stockholm, Sweden, for a year, to work under the direction of Dr. Gösta Forssell.

Reserve Officers at Mayo Clinic.—According to *Northwest Medicine*, 65 per cent of the staff of physicians and surgeons at the Mayo Clinic, Rochester, are medical reserve officers. It is said that in the future no physician will be accepted on the staff of the Mayo Hospital who is not a member of the officers' reserve, provided he is physically fit.

Memorial to Dr. Carman.—The time usually devoted to the meeting of the general staff of the Mayo Clinic, September 29, was given to the presentation of a bronze tablet commemorating Dr. Russell D. Carman, by the American Roentgen Ray Society. The presentation was made by Dr. Edward H. Skinner, Kansas City, chairman of the executive council of the society. Short talks were also given by Dr. Augustus W. Crane, Kalamazoo, and Dr. Preston M. Hickey, professor of roentgenology, University of Michigan Medical School, Ann Arbor. Responses were made by Dr. William J. Mayo, Dr. Charles H. Mayo and Dr. Louis B. Wilson. Dr. Alexander B. Moore presided.

Meetings for the Public.—The Minnesota State Medical Association, through its public health education committee, has arranged a series of four health-day programs for the southern part of the state, to acquaint the public with the truth about health. Physicians will speak at each place and Chew Chew, the health clown, will lecture to children in the morning; during the afternoon and evening, exhibits will be shown and moving pictures to illustrate facts pointed out in the lectures. Another feature will be a playlet on a health subject. Local committees of prominent citizens have been appointed in each city; the Minnesota Public Health Association, the state board of health and the University of Minnesota Medical College will cooperate. The programs will be presented at Blue Earth, October 26; Fairmont, October 27; Pipestone, October 28, and Worthington, October 29.

Society News.—Dr. Friedrich von Müller, professor of clinical medicine, University of Munich, gave a series of Mayo Foundation lectures, the week of September 20, on "Goiter," "Gout," "Nephritis" and "Encephalitis"; Dr. Edouard Rist, Paris, and Sir Henry Gauvain, Alton, England, will lecture at the foundation in October.——At a recent meeting of the Camp Release Medical Society, Granite Falls, Dr. Adolph A. Passer, Olivia, was elected president; Dr. M. Alpheus Burns, Milan, vice president, and Dr. LeRoy J. Holmberg, Canby, secretary-treasurer.——Dr. Edouard Rist, Paris, France, gave an address in Minneapolis, October 12, under the auspices of the Hennepin County Tuberculosis Association on "Diagnostic Pitfalls in Pulmonary Tuberculosis"; members of the city council, board of tax estimate, physicians, nurses and social workers were invited.——Dr. Robert C. Coffey, Portland, Ore., addressed the Minneapolis Surgical Society, Minneapolis, October 13, on "Surgical Treatment of Cancer of the Rectum."——Dr. Frank E. Burch, St. Paul, has been elected president of the Minnesota Academy of Medicine for the ensuing year; Dr. John E. Hynes, Minneapolis, vice president, and Dr. Carl B. Drake, St. Paul, secretary-treasurer.——Dr. Pierre C. Pilon, Paynesville, was host at a dinner to the Stearns-Benton County Medical Society, August 26; Dr. Frederick S. Richardson, Belgrade, gave an address on "Trichinosis."——Dr. Oscar Gans, University of Heidelberg, began a seminar at the Mayo Clinic, Rochester, October 4, in histopathology of the skin; during his stay in Rochester, Dr. Gans will give a series of Mayo Foundation lectures.——Dr. Walter J. Marcley, Minneapolis, was recently elected president of the Trudeau Association of Minnesota, and Dr. Ernest S. Mariette of the Glen Lake Sanatorium, secretary-treasurer, reelected.

MISSISSIPPI

Increase in Death Rate.—The U. S. Department of Commerce announces that the death rate in Mississippi for 1925 was 12.37 per thousand of population, as compared with 11.81 in 1924. The increase was due largely to increases in death rates for influenza, nephritis, typhoid, pellagra, cancer, homicide, diphtheria and automobile accidents. Decreases in the death rate during 1925 occurred in measles, pneumonia and whooping cough.

MONTANA

Hospital News.—St. Joseph's Hospital, Lewistown, is constructing a three story addition for the maternity service.——The new Kennedy Deaconess Hospital at Havre was recently opened.

Personal.—Dr. Francis M. Isom, Livingston, has retired after thirty-nine years in the practice of medicine.——Dr. Thomas F. Walker, city health officer of Great Falls, has been elected president of the Montana State Public Health Association.——Dr. Horace J. Hall, Change Island, Newfoundland, has been appointed on the staff of the Northern Pacific Hospital at Glendive to succeed Dr. Raymond W. Furman, who has moved to California.——Dr. H. S. Holmes, Harlem, has been appointed county physician of Blaine County and city health officer of Harlem.

NEW HAMPSHIRE

Increase in Death Rate.—The U. S. Department of Commerce announces that the 1925 death rate for New Hampshire was 14.52 per thousand of population, as compared with 14.16 in 1924; the increase was due to increases in death rates from influenza, heart disease, cancer and accidents.

NEW JERSEY

Automobile Licenses Revoked.—The state motor vehicle commissioner revoked the licenses of ninety-seven automobilists who were arraigned the week of September 18 for various reasons; in addition to the fine or jail term imposed by the local magistrate, the commissioner revoked their driving permits for a period of two years. The names and addresses of drivers whose licenses were revoked, and the reasons, were made public.

Society News.—The Middlesex County Medical Society held a symposium on goiter, September 15, at Rutgers University, New Brunswick; Dr. Frederick A. Bothe, Philadelphia, discussed the medical aspects of goiter, and Dr. Edward Rose, Jr., Philadelphia, the surgical aspects.——Dr. Robert A. Kilduffe, Atlantic City, addressed the Atlantic County Medical Society, October 8, at the Hotel Chalfonte, on "Clinical Significance of Spinal Fluid Examinations" and Dr. Myrtile G. Frank, Egg Harbor City, "Rhizomelic Spondylosis."

NEW YORK

Society News.—At the twentieth annual meeting of the Third District Branch of the Medical Society of the State of New York, Albany, Dr. Edgar A. Vander Veer, Albany, was elected president; Drs. Herbert L. Odell, Sharon Springs, and Clark G. Rossman, Hudson, vice presidents; Dr. William M. Rapp, Catskill, secretary, and Dr. Ernest E. Billings, Kingston, treasurer.

"Fitter Families" Contest.—The public health committee of the Rochester Chamber of Commerce conducted a "fitter families" contest at the exposition held in that city in September, the purpose of which was to determine by physical examination and a study of the family history those families in which ill health was least likely to make itself apparent. According to *Health News*, each prize winning family received a bronze medal provided by the Eugenics Society of America.

Public Meeting at Downsville.—A meeting was held in the village of Downsville in September under the auspices of the Delaware County Medical Society to interest the public in the promotion of health. While the roads are not the best into Downsville, practically every adult member of the community and nineteen physicians attended this meeting, some from as far away as 50 miles. The village has only two physicians, including the health officer, Dr. Edward A. Holmes, who assisted the president of the county medical society, Dr. Robert Brittain, in making the arrangements.

Whooping Cough Clinic.—The *Weekly Bulletin of the Syracuse Department of Health* states that a whooping cough clinic has been established in Syracuse. Cases will be classi-

fied into: 1. Contacts in the incubation period. These persons will be given three injections of pertussis vaccine at three to four day intervals. 2. Early probable cases without characteristic cough. Laboratory aid will be used to make a diagnosis and to determine the proper treatment. 3. Severe typical cases. Efforts will be made to lessen the period and the degree of suffering in these cases. Inquiry will be made in every case to learn whether a physician had been called and whether the case had been reported to the health department.

New York City

Deaths from Drowning.—The city department of health announces in its weekly bulletin that there were 221 accidental deaths by drowning in New York from June 5 to August 28. It is said that it may be desirable to enact laws to forbid reckless swimming.

First Harvey Lecture.—Prof. F. Neufeld, director, Robert Koch Institute for Infectious Diseases, Berlin, Germany, will deliver the first Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, October 30, on "Recent Investigations in Tuberculosis."

Personal.—Dr. Stephen J. Spitzer has been appointed adjunct attending surgeon to Sydenham Hospital.——Dr. Benzion Liber has accepted the position of health conservation director to the United Workers Cooperative Association.——Holmes C. Jackson, Ph.D., has been appointed dean of the New York University College of Dentistry.

The Milk Situation.—The city board of health dismissed Thomas McMeekan, chief, bureau of food and drugs for the borough of Manhattan, September 28, for "gross irregularities"; the trial was conducted by the board in the absence of the accused, it is reported, as it had been impossible to determine his whereabouts since August 15. Nineteen milk dealers pleaded guilty to offering for sale adulterated milk or cream, and were fined sums ranging from $5 to $25, September 29. The board of health has banned raw grade A milk from the city; only three grades of milk can now be sold; certified, which is raw milk of low bacterial content; grade A and grade B milk, both of which are pasteurized. William H. Kehoe, former assistant corporation counsel, who was recently sentenced to the penitentiary for conspiracy to collect graft in connection with the importation of "bootleg" milk, received a certificate of reasonable doubt, September 29, from Supreme Court Justice Valente, and will be released from Welfare Island under $20,000 bail, pending his appeal to the appellate court.

PENNSYLVANIA

Personal.—Dr. Samuel H. Iams, Waynesburg, has been appointed to the staff of the new $600,000 hospital at Princeton, N. J., it is reported; Dr. Iams has been practicing medicine for more than eighteen years at Waynesburg.

Fined for Violating Liquor Law.—According to the *Pharmaceutical Era*, Dr. Lee W. Darrah, Ellwood City, was fined $250 in the U. S. District Court at Pittsburgh, September 2, following a plea of guilty for violating the federal prohibition law by fraudulently issuing prescriptions for intoxicating liquors on forms provided by the internal revenue authorities.

Health Week at the Sesquicentennial.—The Pennsylvania State Department of Health celebrated "health week" in the Pennsylvania Building at the Sesquicentennial, October 11-16. Demonstrations were made each day of some activity of the department; Monday was laboratory day. Tuesday was sanitation day; the engineering bureau demonstrated for the public its preventive activities in connection with water sources along the roadside and in small towns and municipalities. Wednesday was disease prevention day; an actual demonstration of the usefulness of quarantine and the control of smallpox, scarlet fever, diphtheria, measles, whooping cough and other communicable diseases was made. Thursday was child health day, with demonstrations with living models of well baby clinics. Friday was heliotherapy day with demonstrations of the effectiveness of direct sunlight in the treatment of tuberculosis. Saturday was bookkeeping day with demonstrations of recording machines used by the bureau of vital statistics in its work and exhibits indicating the importance of the various tabulations and records that are kept.

Philadelphia

School Buildings for Tuberculous and Crippled Children.—Special school buildings will be erected in the northeast and northwest section of the city for tuberculous and crippled children as soon as the board of education approves the sites. The committee on elementary schools has recommended the enrolment of handicapped pupils under one roof; the present structures used for tuberculous and crippled children are said to be obsolete.

Hospital Dedicated.—The new Germantown Dispensary and Hospital will be formally dedicated, October 21; the two new six story buildings that complete the hospital group were erected at a cost of $1,600,000, it is reported, of which $1,000,000 was raised by a drive in 1923; these comprise the private patient wing and the staff building. The old private patient building, which is comparatively new, has been moved to a new location on the grounds. The total capacity of the hospital now is 268, formerly it was 150.

Society News.—Drs. William P. Hearn and Louis H. Clerf addressed the Philadelphia Academy of Surgery, October 4, on "Postoperative Massive Collapse of the Lung," and Drs. Thomas J. Ryan and George P. Müller, on "Use of the Russell Apparatus in the Treatment of Fracture of the Shaft of the Femur."——Dr. George M. Coates addressed the Philadelphia Laryngological Society, October 5, on "Present-Day Office Examination for the Testing of Hearing."——The College of Physicians of Philadelphia conducted a symposium on syphilis, October 6, in which the speakers were Drs. Sigmund S. Greenbaum, John H. Stokes, DeForest P. Willard, Joseph E. Moore, John A. Kolmer and Jay F. Schamberg.——The Obstetrical Society of Philadelphia conducted a symposium, October 7, on cesarean section, in which the speakers were Drs. John Vernon Ellson, Jr., Clifford B. Lull and Thaddeus L. Montgomery.——The Philadelphia Roentgen-Ray Society held a symposium on dental infections, October 7; the speakers were Joseph L. Appleton, Jr., William A. Jaquette and Robert H. Ivy.

RHODE ISLAND

Superintendent Appointed.—Dr. Ransom H. Sartwell has been appointed head of the state hospital for mental diseases, Howard, to succeed Dr. Arthur H. Harrington, resigned. Dr. Harrington was superintendent of the hospital for about nineteen years.

TENNESSEE

Health Service for Vanderbilt Students.—A health service bureau has been established this fall at Vanderbilt University, Nashville, for the first time, and Dr. Tom B. Zerfoos and his wife, Dr. Kate S. Zerfoos, will be in charge. The bureau will emphasize preventive medicine among the students, conduct physical examinations, and hold a daily office hour.

Health at Nashville.—Telegraphic reports to the U. S. Department of Commerce from sixty-six cities for the week ending October 2 with a total population of about 29,000,000 indicates that the highest mortality rate (18.6) was for Nashville, and that the mortality rate for the group of cities as a whole was 11. The mortality rate for Nashville for the corresponding week last year was 15.7 and for the group of cities, 10.9.

Society News.—The Stone's River Academy of Medicine, which was recently organized by physicians in Rutherford County, will meet on the second Wednesday of each month. Dr. James C. Overall was elected president.——Dr. James C. Fly addressed a meeting of the Tri-County Medical Society at Kingston, recently, on "Progress in Medical Organization: Its Advantages to the People and to the Profession."——Dr. Willis R. Moss, Clinton, Ky., has been elected president of the Walnut Log Medical Society for the ensuing year; Dr. Marvin A. Blanton, Union City, vice president, and Dr. Robert Lyle Motley, Jr., Dyersburg, secretary-treasurer. This organization, comprising physicians of West Tennessee and West Kentucky, meets annually at Reelfoot Lake.

TEXAS

Scientific Meetings and Barbecues.—A review of the society news in the *Texas State Journal of Medicine* indicates that the medical societies held meetings throughout the summer without the usual vacation; the pleasure which, it might be assumed was foregone, seems to have been present in abundance at these meetings. After a "delicious chicken dinner," August 5, the Lamar County Medical Society adjourned to the lawn, where a scientific program was rendered, Dr. Marcellus A. Walker reading a paper on "Tetanus" and Dr. Oscar W. Robinson reporting his own experience with rabies and the treatment administered to him. The Ellis County Medical Society met at the Bell Branch Country Club, August 10, as guests of the physicians

of Milford and Italy; following a barbecue, "ice cold watermelon" was served and Dr. William C. Tenery read a paper on "Acute Pain in the Abdomen." The Eastland and Comanche County Medical Societies were entertained at Gorman, August 10, by a "watermelon feast and bathing revue"; among others, Dr. Pere M. Kuykendall, Desdemona, spoke on "Pituitary Extract in Obstetrics." After an "enjoyable supper," July 1, the Hidalgo County Medical Society was addressed by Dr. Joseph M. Doss on "Colitis." Dr. Charles M. Simpson, Temple, addressed the Williamson County Medical Society, August 11, on "Diagnosis and Cystoscopic Treatment of Ureteral Calculi." The Lower Rio Grande Valley Medical Society met at Brownsville, August 12; Dr. Isaac Dudley Jackson, San Antonio, among others, spoke on "Indications and Methods of Blood Transfusion"; in the evening, the physicians and their wives enjoyed a Mexican dinner at Matamoros, Mexico. A "toothsome barbecue" and swimming party in the Guadalupe River was tendered the Southwest Texas District Medical Society, Seguin, July 26-27, after 5 p. m. of the first day; the general public was invited to a meeting addressed by State Senator A. J. Wirtz on "The Medical Practice Act"; this was followed by a "watermelon feast." The West Texas Medical Society met at Eagle Pass, August 12; among others, Major Raymond E. Scott, Medical Corps, U. S. Army, spoke on "Administration, Therapy and Sequelae of Snake Bite Serum"; a banquet was served at the Hotel Central, Piedras Negras, and several physicians from Mexico were present. The Tarrant County Medical Society met, August 3, at All Saints Hospital, Fort Worth; at the conclusion of a scientific program, "ice cold watermelon" was served on the lawn.

WASHINGTON

Society News.—Dr. Charles C. Tiffin, Seattle, addressed the Lincoln County Medical Society, Davenport, October 3, on "Association of the Pathologic and Clinical Findings of the Different Types of Goiter."

Lectures on Physical Therapy.—About seventy-five physicians of Tacoma and vicinity attended a course of lectures on physical therapy given at the Tacoma General Hospital, September 20-24, by Dr. Frank B. Granger of Boston.

Patients from Clinics Referred to Physicians.—The deputy health commissioner of Seattle writes in the *Bulletin of the King County Medical Society* that many people who have been able to afford private care have sought medical attention at the city clinics and hospitals. The social service division has investigated the status of applicants for free care, and as a result those applicants able to pay have been impartially referred to private physicians. The amount of work thus diverted to the medical profession during 1925 was estimated at a minimum of $15,000. In the investigation of these cases it was found that the responsibility for the care of many of them belongs to other cities or counties in the state, the U. S. Veterans' Bureau, the state board of health, the state industrial insurance department or some other agency, by referring these patients to the responsible agent, a saving to the city of about $30,000 was realized during 1925.

WEST VIRGINIA

"Palmer Graduates" Fail.—At a recent state board examination in Martinsburg, one chiropractor among ten who took the examination passed, according to the state medical journal; the six applicants who claimed to be "Palmer School" chiropractors are said to have failed.

Changes in Hospital Ownership.—Dr. George A. MacQueen, owner of the Kanawha Valley Hospital, Charleston, has acquired control of the hospital at Keyser, which was operated by the late Dr. C. S. Hoffman, a past president of the state medical society; Dr. MacQueen is also past president of the state association and a former mayor of Charleston. ——Dr. H. L. Goodman, McKendree, and Dr. W. L. VanSant, Hinton, have taken over the Love Hospital in Ronceverte, which hereafter will be known as the Greenbrier Valley Hospital.

CANADA

Personal.—Dr. Albert E. Macaulay has been appointed senior surgeon at the General Public Hospital, New Brunswick, to succeed the late Dr. John H. Allingham.——About fifty physicians recently tendered a complimentary dinner at the Royal Ottawa Golf Club, Ottawa, in honor of Dr. Robert W. H. Powell's completion of his fiftieth year in the practice of medicine. Dr. Powell was presented with a "gold filled" traveling bag.

"Drugless Practitioners" Defined.—At the annual meeting of the Ontario Medical Association, the committee on legislation and by-laws considered "clause by clause" the Act Governing Drugless Practitioners, 1925, in which the term "drugless practitioner" is defined to mean and include any person who practices or holds himself out in any way as practicing the treatment of any ailment, disease, defect or disability of the human body by manipulation, adjustment, manual or electrotherapy, or by any similar method. An amendment to the Ontario Medical Act sets forth that all who are not on the register of the College of Physicians and Surgeons are restrained from using the term "doctor," "surgeon" or "physician."

Legal Raw Milk.—The *Canadian Medical Association Journal* notes that provision has been made in St. John County, N. B., for the legal distribution of unpasteurized milk. The *Royal Gazette* recently published a notice, which was in part as follows:

> Notwithstanding any regulations of any subdistrict board of health, it shall be lawful to sell, hold for sale, and offer for sale for human consumption in the Province of New Brunswick milk and cream to be known as raw milk or raw cream—grade A.

Although the notice sets forth regulations under which this milk may be sold (tuberculin tested cattle, name of producing dairyman, plain marking "raw milk—grade A"), the medical journal considers that this is an unfortunate acknowledgment of pressure on the government by interested parties. The pasteurization of milk has been carried on for some time in St. John successfully and agreeably to the majority of the citizens.

GENERAL

Society News.—The National Academy of Sciences will meet at the University of Pennsylvania and the Wistar Institute of Anatomy, Philadelphia, November 8-10.——Dr. Robinson Bosworth, Rockford, Ill., was elected president of the American Sanatorium Association at the recent meeting in Washington, D. C.; Dr. Henry Boswell, Jr., Jackson, Miss., vice president, and Dr. Walter L. Rathbun, Fredonia, N. Y., secretary-treasurer.——At the annual meeting of the National Tuberculosis Association, Washington, D. C., October 4-7, Dr. Henry Sewall, Denver, was elected president, and Dr. George M. Kober, 1819 Q Street N. W., Washington, D. C., secretary.

Location of Third Rural Hospital.—The Commonwealth Fund, New York, is making studies in eleven northern and midwestern states to determine where to locate the third rural hospital to be constructed under the cooperative plan established by the fund. When the location is selected, the fund will donate two thirds of the cost of construction and equipment of the hospital, and the community will contribute one third and the cost of maintenance. The first rural hospital to be established under this plan will be at Farmville, Va., and the contracts for construction have been let; the location of the second rural hospital has not been selected, but it will also be in the South. The Commonwealth Fund is a philanthropic foundation established by the late Mrs. Stephen B. Harkness.

Disease in the Aggregate.—From cities in the United States of 100,000 or more population, there was reported to the U. S. Public Health Service during 1925 the following number of cases of notifiable disease:

Anthrax, 48 cases in ten cities.
Cerebrospinal fever, 650 cases in fifty-seven cities.
Chickenpox, 60,487 cases in eighty-one cities.
Diphtheria, 44,053 cases in eighty-one cities.
Influenza, 9,423 cases in forty-one cities.
Epidemic (lethargic) encephalitis, 887 cases in forty-five cities.
Malaria, 812 cases in twenty cities.
Measles, 99,260 cases in eighty-one cities.
Mumps, 23,938 cases in seventy-eight cities.
Pneumonia (all forms), 41,340 deaths in eighty cities.
Infantile paralysis, 1,653 cases in seventy-three cities.
Rabies in man, 33 deaths in eighteen cities.
Scarlet fever, 69,865 cases in eighty cities.
Septic sore throat, 252 deaths in thirty-two cities.
Smallpox, 9,547 cases in eighty-one cities.
Tuberculosis (all forms), 58,385 cases in sixty-three cities.
Typhoid, 6,790 cases in eighty cities.
Typhus fever, 35 cases in seven cities.
Whooping cough, 53,411 cases in seventy-seven cities.
Total, 418,769.

Automobiles Kill Four Thousand in Seventy-Eight Cities.—According to reports to the U. S. Department of Commerce from health officials in seventy-eight cities with an estimated population of 32,000,000 people, there were 4,162 deaths from automobile accidents between January 3 and September 11, which is an average of more than sixteen a day and equiva-

lent to an annual death rate of 18.9 per hundred thousand of population. The department of commerce tabulates thirty-three cities according to the mortality rates from accidents that occurred within the city limits for the first thirty-six weeks of this year; Kansas City, Kan., had the lowest automobile accident mortality rate (1.2 per hundred thousand); Grand Rapids, Mich., was second (4.6); Trenton, N. J., third (7.6); Fall River, Mass., fourth (7.7) and Paterson, N. J., fifth (9.1). The five cities having the highest rates were Indianapolis, 23.3; Duluth, 23.1; San Diego, Calif., 22.4; Dallas, Texas, 21, and Chicago, 20.4.

Clinical Congress of Physical Therapy.—The fifth annual meeting of the American College of Physical Therapy will be at the Drake Hotel, Chicago, October 18-23, under the presidency of Dr. John S. Coulter, Chicago, and in conjunction with this meeting there will be a Clinical Congress of Physical Therapy. Among the speakers will be:

Albert Bachem, Ph.D., Chicago: "Biophysics of Ultraviolet Light."
Dr. Argus David Willmoth, Louisville, Ky.: "Physical Agents in Gynecology."
Dr. Lynne B. Greene, Kansas City: "Physical Therapy in Dermatology."
Dr. Harry L. Langnecker, Palo Alto, Calif.: "The Rational Teaching of Physical Therapy."
Dr. Edgar Mayer, Saranac Lake, N. Y.: "Artificial Light in Tuberculosis."
Dr. Franz Nagelschmidt, Berlin, Germany: "Diathermy and Internal Secretion."
Dr. Arthur E. Schiller, Detroit: "Ultraviolet Radiation in Leg Ulcers."
Dr. Harry M. Thometz, Chicago: "Tonsil Desiccation."
Dr. G. Henry Mundt, Chicago: "Physical Therapy in Relation to the State Medical Society."
Dr. Edwin N. Kime, Indianapolis: "Ultraviolet Light in Relation to the Calcium Factor in Normal and Pathologic States."
Dr. Roy W. Fouts, Omaha: "Value of Dye in X-Ray Examination of the Gallbladder."

There will be a Round Table discussion, also clinics at the American Hospital, Cook County Hospital and Wesley Hospital on Saturday. A dinner will be held Wednesday evening in honor of the invited guests an informal smoker, Thursday, a joint meeting of all the sections Friday morning, and an executive business session of the college, Thursday, 2 p. m. The presidential address will be delivered Wednesday morning, when the incoming president, Dr. Disraeli Kobak, Chicago, will be installed.

International Union Against Tuberculosis.—The International Union Against Tuberculosis held its fifth conference in Washington, D. C., September 30-October 2, under the patronage of the National Tuberculosis Association of the United States. The delegates were welcomed by Dr. Hugh S. Cumming, Surgeon General, U. S. Public Health Service, and Dr. Theobald Smith, Princeton, president of the International Union Against Tuberculosis. A reception committee of eminent tuberculosis specialists, physicians and welfare workers of the United States also welcomed the visitors. The scientific program was divided into three general subjects—clinical, research and sociological. Under clinical, Prof. Gaetano Ronzoni, professor of medicine, University of Milan, Italy, discussed the part played by contagion in tuberculosis among adults. Under this subject Dr. Linsly R. Williams, managing director, National Tuberculosis Association, New York City, also delivered a lecture on "The Progress and Organization of Antituberculosis Work in the United States." Discussions under the subject of research included a lecture by Dr. Allen K. Krause, associate professor of medicine, Johns Hopkins University, Baltimore, on "The Anatomic Structure of Tubercle from Histogenesis to Cavity." Trends in tuberculosis work were discussed by Dr. Gerald C. Webb, Colorado Springs, Colo.; "Tuberculosis and Milk" was the principal sociologic subject with an address by Dr. William H. Park, professor of bacteriology and hygiene, University and Bellevue Hospital Medical College, New York. The executive committee of the organization is composed of Dr. Theobald Smith, Prof. Leon Bernard, Paris, secretary general; Dr. F. Humbert, Paris, associate secretary general, and M. André Pallain, Paris, treasurer. The other members of this committee are Dr. E. Dewez, Mons, Belgium; Sir Robert Philip, Edinburgh, Scotland, and Prof. A. Calmette, Paris. The International Union Against Tuberculosis was organized in Paris under the patronage of the Comité National de Défense contre la Tuberculose in October, 1920. The second meeting was held in London in July, 1921, the third in Brussels in July, 1922, and the fourth in Lausanne in August, 1924.

"Milk Sickness" and "Trembles."—A recent outbreak in Illinois of "milk sickness," a disease closely related to "trembles" in cattle, caused the death of fifteen persons, according to reports reaching the U. S. Department of Agriculture. The outbreak, the department says, is a repetition of many similar ones throughout the country and recalls heavy death losses among early pioneers. James F. Couch, U. S. Bureau of Animal Industry, has shown by experiments, supplementing those of other investigators, that poisonous plants cause trembles in cattle, sheep, horses and other animals, that animals also may be poisoned without showing symptoms of trembles, and that milk and butter from cows so poisoned are dangerous to the consuming public. The results of these experiments explain also a condition which observing farmers had been reluctant to believe; namely, that milk sickness among persons may occur in the winter, when the poisonous plants are dormant.

Two plants are responsible for trembles in livestock. In the East and Central West the poisonous plant is the richweed, also known as white snakeroot. In Texas and New Mexico, where the animal malady is called "alkali disease," the poisonous plant is the rayless goldenrod. Richweed is a slender plant, from 2 to 4 feet high, with leaves from 3 to 5 inches long, pointed and thin. It is widely distributed in the eastern part of the United States and as far west as Minnesota and Nebraska, and as far south as Louisiana. It is found generally in rich soil in damp woods. Rayless goldenrod, known in some localities as jimmy weed, is a stout, erect, tufted perennial herb, commonly from 1 to 2 feet, but it may grow taller under favorable conditions, as on the banks of irrigating ditches. The leaves are narrow and about 1 to 2 inches long, usually with stout, stiff hairs on the margins.

Animals may be poisoned by the dry richweed plant—such as in hay—in winter, but still not have trembles. This fact is due to the presence of three poisonous substances in richweed, only one of which causes symptoms of trembles in cattle and milk sickness in human beings. This poison, which is a complex alcohol, has been named "tremetol." The other two poisons are a resinous acid and a volatile oil. The poison of the rayless goldenrod has not been studied so completely, but is known to be dangerous when the plant is either green or dry.

There is abundant evidence that the products of poisoned animals are dangerous for human consumption. Milk and butter from dairy cattle that have consumed either of the plants mentioned are considered gravely dangerous, though a conclusive chain of evidence leading directly to these products has not yet been established. Even when milk sickness is not fatal to man, there usually follows a long period of illness and reduced vitality. The department of agriculture advises stock owners to combat the poisonous plants mentioned by pulling or digging them up wherever found. Especially during the fall, animals also should be kept out of pastures infested with the poisonous plants.

FOREIGN

Personal.—Dr. T. Sato has been made director of the bureau of epidemiologic information recently founded at Singapore by the health section of the League of Nations.——The *Nederlandsch Tijdschrift voor Geneeskunde* says that Prof. B. Brouwer has declined the invitation to organize a neurologic clinic according to his own ideas at Johns Hopkins University. Our exchange congratulates Amsterdam and the Netherlands on his decision.——Dr. A. Austregesilo, professor of neurology at the University of Rio de Janeiro and member of the lower house, has introduced a bill for founding a home for students from Brazil in the university center at Paris. The Canadian, Belgian and Argentine students already have separate homes of the kind.——The *British Medical Journal* states that 200 obstetricians and gynecologists from Europe and America attended the centennary of the Coombe Lying-In Hospital at Dublin in September. Dr. James B. de Lee, Chicago, raised the question whether parturition is not a pathologic process in modern civilization.——Dr. L. Mayer, editor of the *Bruxelles-médical*, has been elected associate member of the Italian Surgical Society.——Dr. C. M. Cortezo, president of the Spanish Academy of Medicine and editor of the *Siglo Médico*, presided at the recent international Esperanto Congress at Madrid.——The Belgian Academy of Medicine has elected as foreign correspondents Drs. R. L. Bing, Basel, J. L. Faure, Paris, and K. Shiga, Seoul.——Prof. A. Schlossmann, professor of children's diseases, University of Düsseldorf, presided at the "Naturforscher Congress" at Düsseldorf in September. He made a plea to close the portals of higher learning a little; saying that they have been standing too wide open.——Dr. Bandelac de Pariente, of the Spanish embassy in Belgium, has been made a commander of the Légion d'honneur by the French government for services rendered during the war.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 25, 1926.

The Need to Limit Our Population

In the *Morning Post*, the economist Mr. Harold Cox urges the need of limiting our population, replying to a letter from a woman physician, Dr. Mary Scharlieb, who expresses fear that the English birth rate is declining too rapidly. In her judgment, it is the duty of the inhabitants of Great Britain to multiply in order to fill the waste spaces of the empire. Mr. Cox points out that she overlooks the fact that the dominions will accept only picked migrants from the mother country. Since the war, the number of migrants to the dominions has declined enormously, and is still declining. At the present moment England is overcrowded. In round figures, there are four times as many persons to the square mile in England as there are in France. Yet there are unmistakable signs that the peculiar circumstances that made England the workshop of the world and thus enabled her rapidly to increase her previous moderate population no longer operate. The most important of our industries, the cotton industry, is suffering from increasing competition in overseas markets from Italy, India and Japan. Many of our other industries are finding their markets diminished by the development of competing industries in the dominions as well as in foreign countries. And when the coal strike ends, we shall probably find that it has done permanent damage to our iron and steel industries and to our shipping industry. For these reasons, it is desirable that our population should be greatly reduced with as little delay as possible. At present the population of England and Wales alone, by excess of births over deaths, is increased at the rate of 4,000 a week. Those people who are alarmed at the mere suggestion of reducing our population may be recommended to study history. So far as can be ascertained, the population of England was stationary through the sixteenth, seventeenth, and the greater part of the eighteenth centuries. Yet that was one of the most glorious periods in our long history. It was then that England spread her power round the world, building up two great overseas empires, one that still lives under the protection of her flag. If England is to face successfully the keen industrial competition she now has to meet in her overseas markets, she must rely on the quality, rather than on the quantity, of her goods. Equally must she rely on the quality, rather than on the quantity, of her people. Mr. Cox thinks that the best way of working toward that end was plainly indicated in the resolution passed by the house of lords last May, calling on the government to permit maternity centers to give information to poor women who wished to limit their families. The government still continues to ignore that resolution, with the result that the least fit classes are producing the largest families.

Propaganda by Pageant

Pageants, as a means of combating disease, were apparently, according to the official report of the proceedings of the Imperial Social Hygiene Congress, responsible for the elimination of the annual scourge of cholera, which one of the districts of China, Foochow, experienced annually. Dr. W. Peters was invited to go to Foochow to see whether he could not mitigate the horrors of the annual visitation. He agreed, provided that a certain amount of money was placed at his disposal for propaganda. On his arrival he proceeded to enlist all the schoolboys of the place, and to drill them in certain elementary facts and principles in regard to cholera. He organized both school children and the teachers into a propagandist corps, and constructed for the purposes of their campaign gigantic figures of flies, gigantic coffins, and gigantic replicas of the utensils necessary for boiling water, gigantic effigies of bodies, and the like, and converted his corps into a troupe of actors who continuously paraded the streets of the town, showing what happened if unboiled water was drunk, if flies were permitted to pollute food, and also the simple methods by which the consequences of neglect could be avoided. It was very gratifying to Dr. Peters to receive, two months after the cholera season was due, a telegram from the governor and people to the effect that "Foochow is an island of refuge in a sea of cholera."

Abrams' Box Again

Perhaps nothing shows better the similarity—in spite of many differences—of the English-speaking peoples on each side of the Atlantic than the extent to which quackery (and the same quackery too) flourishes among them. We are indebted to America for our two most blatant forms of quackery—osteopathy and Abrams' "box." The latter is now being used in this country to "treat," among other diseases, rheumatoid arthritis, angina pectoris, tuberculosis and even cancer. It is stated that twenty-five qualified physicians have taken up this stunt, "clinics" have been set up in Kensington, and a number of "cures" already are claimed by the secretary of the Society of Electronic Medicine, who first introduced the "box" to this country. Here are some of the "cures" given in the press: "A Richmond schoolmaster on the point of being sent to a sanatorium came to me recently," says this secretary. "He was tubercular and had had to give up work. After a fortnight's treatment with the oscilloclast he was able to take a short holiday and go back to work cured." "A girl with a tubercular shin is now playing hockey. Recently she was hit on the one-time tubercular shin with a hockey stick and suffered no ill effects." We are also informed that the secretary, himself a qualified physician, would not allow his name to be used for publication, and said he could not, in the existing circumstances, divulge the names of the twenty-five users of the "box." Two are members of hospital staffs, he stated, but as the hospitals are not specified, this may not mean much.

Herbert William Page

Herbert William Page, F.R.C.S., consulting surgeon to St. Mary's Hospital, has died in his eighty-first year. He was a distinguished surgeon, best known for his work on railway injuries. He came into conflict with Erichsen, the leading authority of the day, who taught that "Concussion of the Spine" was specially connected with railway accidents. In 1881, Page was awarded the Boylston prize of the University of Harvard for his essay on "Injuries of the Back Without Apparent Mechanical Lesions in Their Surgical and Medico-legal Aspects." This essay was subsequently expanded into a book which became the standard one on the subject. In contradiction to Erichsen, he showed that what was called "railway spine" was a mental condition caused partly by the pain due to a definite injury to ligamentous and muscular structures of the spinal column and partly to apprehension. He taught that the condition was maintained and augmented by autosuggestion. This view completely displaced the previous teaching that the symptoms were due to concussion of the spinal cord analogous to concussion of the brain. His work gained for him the unusual distinction, for a surgeon, of the presidency of the Neurological Society.

Phototherapy at the Zoological Gardens

The monkey house at the zoological gardens, built in 1864, like its more recent annex, the anthropid ape house, was constructed in the belief that the first requirement of these animals

was protection from cold. But recent advances in mammalian hygiene have shown that there is no worse way of pursuing this object than to keep them in a house warmed to an even temperature. There may be occasional exceptions, such as animals that are ill or inhabitants of dank and steamy forests, but the vast majority of mammals keep up the temperature of their bodies better and are healthier if their physiologic rhythm is tuned up to the play of cold air on the skin and lungs and by the stimulus of strong light. These principles have been tried in a small experimental house built for apes and monkeys. Delicate creatures that have seldom thriven under the old conditions have maintained excellent health all the winter, with constant access to the open air, with cold air passing freely through the interior, but with warm shelves on which to rest and with artificial sunlight from electric lamps when there is no natural sunlight. A new house is to be built on these principles to accommodate all the apes, monkeys and lemurs. All the inner cages will open into a large outdoor compartment by revolving doors which the monkeys will themselves operate. There will be free ventilation through the whole house, but each inner compartment will have shelves kept warm by electric heaters and supplied with artificial sunlight.

Proposed Visit to London by Negro Physicians

Though it cannot be said that no color feeling exists in this country, it is slight compared to what prevails in America, and a color line may be considered unknown in the ordinary sense. However, the announcement that in May a liner will reach these shores carrying 500 qualified professional men (physicians and lawyers) and their families, all negroes, to study the methods of the corresponding professions here, has given rise to some discussion. The American Information Bureau has circularized the hospitals, requesting them to grant facilities. Professor Wright, dean of the medical school of the London Hospital, in a press interview stated that the question was one for conference between the medical schools, and that it was not desirable that "a large number of negroes should be dumped on any particular hospital." This has given rise to heated comment by Mr. Holahan of the bureau, who characterizes Professor Wright's statement as a "gratuitous insult" and a breach of confidence and etiquette. He adds that the bureau has had favorable replies from some of the hospitals, but some have refused for "internal reasons." Dr. A. S. Woodwark, dean of Westminster Hospital, stated to a press representative: "As far as I know at present, we shall grant the facilities asked for, but I am not quite clear what is the full request."

Deafness Mistaken for Mental Deficiency

In the second annual report of the National Institute for the Deaf, the present methods of determining mental deficiency in the deaf are strongly criticized: "The committee has evidence of the fact that deaf children who are merely the victims of neglected education and training are sometimes certified as mentally defective and placed in institutions unsuitable for them. We are of opinion that the usual methods of certifying insanity in the cases of deaf persons are as unsatisfactory as those obtaining in the diagnosis of mental deficiency in deaf children. Having become aware of several instances of wrongful certification, we submitted to the royal commission on lunacy a statement on the dangers of relying on the opinions of physicians who have no knowledge of the inherent effects of deafness or its possible complications. It is hoped that the commission will advise that the deaf suspected of insanity will be safeguarded against the awful risks of wrong judgment and of association with the mentally deranged, by having them examined by an expert in the psychology of deafness." The report also has something to say of the manner in which deaf motorists are treated by magistrates: "The offenses charged against these persons have usually been of an ordinary character, and such as are committed by hearing persons in great numbers. Nevertheless, it is clear from their expressions that the magistrates in several cases have taken the affliction into greater account than their offenses."

The Control of Nursing Homes

The select committee appointed by parliament to inquire into the question of the inspection and supervision of nursing homes has issued its final report. The following are the chief recommendations: Legislation should be introduced to give effect to a scheme of registration and inspection at an early date. The supervising authorities should be county councils, who might delegate their powers to a committee on which both physicians and nurses have representation. The duties of inspection should be carried out by health officers with the assistance of other technical officers. Inspection should be limited to the general suitability and organization of the home and should not embrace any inquiry into the medical records or private affairs of the patients. Certain publicly controlled institutions should be expressly excluded from the scheme. A nursing home should not be exempt on the sole ground that a physician is resident therein or controls it. In every nursing home that applies for registration in future, the matron or other person in charge should be a fully qualified nurse. No rules could be laid down as to the percentage of a trained nursing staff universally applicable, but there is much to be said for the argument that the public pays for expert nursing and expects to receive it. Patients are frequently unaware that the uniformed individuals in charge of them are in many cases unqualified girls with no real training. The committee was deeply impressed with the urgent need for registration and supervision in nursing homes catering for poor senile and chronic patients.

PARIS

(From Our Regular Correspondent)

Sept. 15, 1926.

Diagnosing Drunkenness by the Percentage of Alcohol in the Blood

At the Congress of Legal Medicine, Dr. Villedent discussed the diagnosing of drunkenness by the percentage of alcohol in the blood. The method has a certain amount of importance when it is desired to establish the responsibility of the author of an accident. If a pedestrian is killed by an automobilist, no witnesses being present, and if an examination of the victim's blood shows that he was in a state of complete intoxication and unable to note or heed signals, and that he simply rolled under the wheels, it is evident that the responsibility of the author of the accident will be much lessened. One can imagine many other circumstances under which it might be useful to apply some other test for drunkenness than the observation of incoordinated movements and confused speech.

The percentage of alcohol in the blood has all the more significance in legal medicine owing to the fact that the proportion remains the same for several hours after death. Alcohol becomes rapidly diffused throughout the various organs and is found in the liver and in the brain in the same proportions as in the blood. It is sufficient, for all practical purposes, to discover the percentage of alcohol in the blood—after distillation. There are several methods available, the oldest (that of Professor Nicloux of Strasbourg) being still the best. A considerable amount of potassium dichromate solution is added to the liquid to be examined. On introducing sulphuric acid, drop by drop, one obtains a certain amount of chromium sulphate, which increases with the alcohol content, the liquid ranging from a pale yellowish green to a bluish green, turning finally to blue. The per-

centage is estimated by comparison with a standard colorimetric scale.

The alcohol ingested is absorbed very rapidly but progressively. The maximum is reached in from two hours to two hours and a half. The elimination is gradual and complete at the end of fifteen hours in a subject unused to excesses. In an alcohol addict, however, the absorption and elimination are much more rapid. The maximal blood alcohol content is reached at the end of an hour and a half. The elimination is complete after seven hours. But in the cadaver the quantity remains fixed for a long time. If putrefaction has set in, it is advisable to distill in the presence of trinitrophenol, then sodium carbonate, to eliminate reducing substances that might give rise to errors.

To simplify calculations, it is better to express the percentage of alcohol obtained in relation to the weight of the body. From 1 to 2 cc. of absolute alcohol per kilogram of body weight is not sufficient to produce true drunkenness. Three cubic centimeters will usually cause slight intoxication, while the ingestion of from 4 to 6 cc. produces commonly deep intoxication. Anesthesia is effected by 7 cc. or more, and is complete if 10 cc. is ingested. According to Professor Balthazard, a state of intoxication is produced following the ingestion of three or more cubic centimeters. With 4 cc., a staggering gait results. After the ingestion of between 2 and 3 cc., persons who are not habitual drinkers are already in an abnormal state and capable of committing inconsiderate acts. If, in the analysis of the blood of a person weighing 75 kilograms, one finds 4 cc. of alcohol per liter of blood, the conclusion is justified that he ingested, at least two hours before his death, a quantity of absolute alcohol greater than 75 times 4, or 300 cc., which corresponds to 3 liters of wine of 10 per cent alcohol content, or to more than half a liter of brandy containing 50 per cent alcohol.

Rheumatism and Tuberculosis

The Société des médecins des hôpitaux de Paris developed recently an interesting discussion which raised anew the old question of the antagonism between rheumatism and tuberculosis. The dogma of medicine of fifty years ago is today almost completely abandoned. Landouzy and Hirtz have shown that emphysema, regarded as an arthritic manifestation, might be the beginning of a latent pulmonary tuberculosis. Poncet has described a case of tuberculous rheumatism in which sclerous lesions of the articular connective tissue were the expression of an intoxication by tuberculin toxins. There are still a few supporters of the old doctrine; but every day the cumulative evidence diminishes the number. Before the Société des médecins des hôpitaux de Paris, Babonneix and Mornet presented a case of acute polyarticular rheumatism in a young woman, preceded by angina, which developed in the form of manifest tuberculosis of the wrist joints, as verified by a roentgenogram. The disease was a pulmonary tuberculosis of long standing, treated recently by artificial pneumothorax. Professor Bezançon, entering into the discussion, cited numerous cases of tuberculous localizations accompanying acute articular rheumatism; among others, a generalized granulitis with manifestations of articular rheumatism alternating with paroxysmal attacks of iritis. Finally, M. Netter recalled that nodose erythema is ordinarily of rheumatismal origin but that nevertheless it often gives very violent reactions to tuberculin.

Mountain Sickness

The general disorders observed in connection with mountain climbing in high altitudes have commonly been explained by the diminution of the pressure of atmospheric oxygen, of which the blood absorbs a less proportion according as the barometric pressure falls. The experiments of Paul Bert in this field have remained classic. But new ideas are beginning to prevail, which tend to introduce a new factor; namely, a state of autointoxication due to the retardation of the circulation through fatigue of the cardiac muscle. The fatigue itself is evident. It is manifested by an unduly rapid pulse, lowering of the blood pressure, dyspnea, dizziness, migraine, disorders of vision resulting from retinal anemia, and, finally, diminution of the urinary secretion. Cordier has shown that urinary toxicity increases greatly under these conditions, which is easily explained by the large amount of waste matter produced by the intense muscular work involved in the ascent. It is to the retention of this waste matter, rather than to the diminished urinary excretion and the lowered blood pressure, that the most striking symptoms of mountain sickness are due. The diminution of the amount of oxygen absorbed would tend to aggravate the symptoms, since it would cause a less active combustion of the organic waste matter; but the initial factor is the fatigue of the heart. Cordier has furnished various proofs for this statement. Mountain sickness develops at various altitudes depending on the individual person. In the same subject, it begins at higher altitudes after one has had some training and the heart has developed some resistance. It subsides soon if the subject stops and rests. Furthermore, it is not observed if the subject reaches high altitudes on being transported thither without performing any muscular work. The astronomer Janssen, who, at the age of 80, was transported to the summit of Mount Blanc on a sled, arrived without any inconvenience. Again, aviators do not begin to experience any difficulty until they have reached much higher altitudes than those at which mountain sickness sets in in climbers. Aviators' sickness is, moreover, different from mountain sickness. The rarefaction of the oxygen is the only cause, as was shown by the experiments of Paul Bert with the bell in which he reduced the atmospheric pressure. A fact recently discovered by Dr. Bayeux must be mentioned; namely, the rarefaction of the carbon dioxide, which diminishes more rapidly than oxygen in the elevated regions, because it is heavier. In human respiration, a small quantity of carbon dioxide is necessary to aid in the fixation of the oxygen to the blood corpuscle. The tubes of compressed oxygen, carried by aviators who are endeavoring to establish new records for altitude, must always contain a small quantity of carbon dioxide, for the result thus obtained is much better than with pure oxygen.

To ward off attacks of mountain sickness, Cordier recommends to mountain climbers to use food with as few toxins in it as possible, in order to avoid increasing their state of intoxication—to carry condensed milk rather than canned food, to ingest tea, coffee or kola to sustain the heart, and also chocolate and theobromine, to prevent the lowering of the blood pressure and the diminution of urinary excretion.

A Club Building for Nurses

The Red Cross Society has decided to establish in Paris a club building for nurses. The nurses are increasing rapidly in numbers and are rendering good service in the public and private hospitals, the clinics, the dispensaries and the day nurseries. They are, for the most part, unattached, and will appreciate a modern club home for nurses where they may procure lodging and food under favorable conditions and pleasant surroundings. The only accommodations of the kind at present are a school in the Glacière quarter, with some hundred rooms. These have become inadequate; then, too, it is a school and not a hotel or club. The Red Cross Society has purchased a large site in the fifteenth arrondissement, overlooking Necker Square. The club building is already in process of construction and will form a large quadrilateral, the center of which will be occupied by French gardens. It will contain 175 rooms, plain but neat and cozy; a reception room, a reading and writing room combined, a library, a small gymnasium, and a restaurant with moderate prices.

The club will be opened in 1927. The estimated cost of the building and grounds will be four million francs. A part of that sum has been raised by means of charity festivals and private subscriptions. The subscription list is still open, and it is pleasing to observe the readiness with which many old soldiers, grateful for the care they received from their nurses, contribute to the enterprise.

The Club House for American Students

The government, for reasons of economy, has decided to eliminate a large number of buildings the utility of which has diminished; particularly, certain buildings that were utilized by the cavalry. M. Painlevé, the minister of war, has ordered razed, among others, a building located on Jourdan Boulevard, near the Bois-de-Boulogne, in which were formerly the stables of the marshals of France. A part of the beautiful site is to be used for the construction of a club house for American students. The citizenry of Paris has expressed its approval of the action of the government. The club house will constitute a part of the vast "Cité Universitaire" now being constructed on the site of the old fortifications on the south side of the city. The American club house will be somewhat detached from the other buildings but will be located in a finer section.

The French Congress of Surgery

The thirty-fifth French Congress of Surgery will be held at the Faculté de médecine de Paris, October 4-9, under the chairmanship of Prof. J. L. Faure. The topics and speakers on the program are: (1) the pathology of the menisci of the knee joint, A. Mouchet (Paris) and Tavernier (Lyons); (2) conservative operations in inflammatory lesions of the uterine adnexa, de Rouville (Montpellier) and P. Mocquot (Paris); (3) treatment of gonococcal arthritis in process of evolution, Michel (Nancy) and Mondor (Paris). An exhibit of surgical instruments, appliances, apparatus, dressings, electrical machines and the like, will be held in the grand vestibule of the Faculté de médecine.

BELGIUM

(From Our Regular Correspondent)

Sept. 2, 1926.

Third Congress of French-Speaking Dermatologists

Since its foundation in 1922, the Congress of French-Speaking Dermatologists has taken on more and more an international character. The meetings were held this year in Brussels, under the chairmanship of Dr. Lespinne, who, in his opening address, recalled the part played by French scientists in the progress of dermatology, and emphasized the importance of the researches of Sabouraud. He gave reasons for the continued association of dermatology and syphilography, designating them as twin sisters who always appear together. There were six topics on the official program, and brief résumés of the papers presented follow:

TUBERCULIDS

Jörgen Schaumann of Stockholm called attention to the symptomatologic and the etiologic polymorphism of tuberculids. There are no fixed criteria with regard to the diagnosis of tuberculids. The symptomatology is indefinite, and bacteriologic and biologic tests are usually unreliable. There is no treatment of absolute value, nor any so specific as to justify, in case of failure to cure, definite conclusions as to etiology. All these affections develop by periodic attacks, with variable histologic form; the tubercle bacillus is seldom present, and the lesions often heal spontaneously. The lesions appear in subjects affected with benign tuberculosis, whose skin is very sensitive to tuberculin and in a state of allergy. Their characteristics are so similar and they appear under such uniform anatomic and biologic conditions that one is compelled to assume a common pathogenesis. The close relationship between the various forms of tuberculids is indicated by the frequent coexistence or succession of various types of eruption side by side in the same patient. A specific origin or a specific type of pathologic agent is unnecessary, but rather a soil modified by a previous infection—partially immunized, and being in a state of allergy. The manifestations of tuberculosis may be confined to the inoculating lesion and the glandular reaction without extending farther, in the first stage. Treatment will consist chiefly in general heliotherapy. Certain preparations give encouraging results: tuberculin, neo-arsphenamine, mercury salts, salts of rare earths, and, especially, gold preparations.

HERPES AND ZONA

Dr. Charles Flandin of Paris pointed out that it was difficult to establish a relation between herpes and zona. Herpes constitutes an entity among dermatologic conditions due to a filtrable virus. Zona, on the other hand, must be classified among the eruptive fevers and should be associated with varicella. Levaditi holds that herpes and zona are infectious diseases induced by different and specific micro-organisms. Herpes and zona do not appear over the whole body, but sometimes on the cornea, sometimes on a portion of the skin or a mucous membrane, occasionally on a cutaneous metamere, or possibly on a neuraxial neuromere, for the reason that each of these segments presents a local receptivity or, what amounts to the same thing, a deflected natural immunity. The author concludes, in accordance with the theory that he advances, that the localization of the virus of herpes and of the causative agent of zona over limited areas of the skin and over neuraxial segments adjacent to these regions is determined by a momentary drop in the metameric immunotrophic power of the nervous system.

VARIOUS TYPES OF PURPURA

Dr. P. Emile Weil of Paris emphasized that purpura is not an entity, any more than hemoptysis or melena. Whether isolated or associated with other hemorrhagias (mucous or visceral), purpura furnishes syndromes that deserve to be studied clinically in separate fashion. The author holds that the symptoms appearing in chronic purpuras arise from involvement of all the hematopoietic organs, the spleen, the bone marrow and the liver. Endocrine glands, furthermore (particularly, the ovary and the sympathetic system), are involved in hemorrhagias. In other types of purpura, vascular changes of toxic or microbic origin, blood changes resulting from lesions of the liver and the hematopoietic organs, and, finally, functional disorders of the sympathetic nervous system are concerned. However, the cause in each clinical type is not entirely explained. Lespinne and Ferond of Brussels discussed particularly purpuras developing after the administration of arsphenamine, which does not seem ever to be due to arsenical intoxication. It affects the spleen and the bone marrow. The authors hold that the term "purpura" represents only the external manifestation of a deeper internal disorder affecting the whole or a part of the circulatory and hematopoietic apparatus.

SYPHILITIC REINFECTION, PSEUDOREINFECTION AND SUPERINFECTION

Dr. Bernard of Brussels gave a survey of the question of syphilitic reinfection since the fifteenth century, and then discussed the diagnosis of reinfection. The term "pseudoreinfection" denotes only an error of diagnosis. Experiments performed on animals and man, treated or untreated, prove the possibility of superinfections. The possibility of a reinoculation is dependent on the state of immunity. There exist, however, all degrees between reinoculation of the immunized

syphilitic and the inoculability of a syphilitic of long standing who has lost his immunity either owing to long persistance of the disease or to treatment. It is not possible under such conditions to state definitely when the superinfection ceased and when the reinfection began. The reappearance of syphilis, whether it is a superinfection or a reinfection, demands the resumption of treatment. Likewise, the author believes that it would be wiser to group in a single syndrome the accidents of superinfections and reinfections, and he suggests designating them simply "reinoculation," or "second syphilitic infection."

In another paper on the same subject, Dr. Carle of Lyons stated that, in order to be certain of a diagnosis of reinfection, there must be (1) the certitude "de visu" of the authenticity of the primary attack; (2) the certitude of contaminating contact and of the period of incubation of the second attack as corresponding to the usual period; (3) the observation of spirochetes in sufficient quantity in the serous exudations in the second attack, and (4) the usual characteristics of chancre symptoms in the second attack, and of adenopathy, even though attenuated. The diagnosis will be still further assured by three secondary conditions: either an intensive course of treatment during the preserologic period or at the very beginning of the infection and repeated from time to time, or several years of regular treatment without accidents. In either case, negative Wassermann tests as a result of treatment would strengthen greatly our diagnosis of reinfection. The appearance of secondary accidents, within the regular periods and of the usual type, is the best evidence that can be secured of reinfection. As to inherited syphilis, it has been proved that tertiary, quaternary and dystrophic heredosyphilitics are not immunized against syphilis. Attenuation of the symptoms is the rule, but the observation is a delicate matter and it is difficult to reach a definite conclusion.

ENDOCRINE AFFECTIONS OF HEREDOSYPHILITIC ORIGIN

Drs. J. Nicolas et J. Cate of Lyons stated in their paper that the notion of endocrine affections of heredosyphilitic origin is based, on the one hand, on anatomopathologic and parasitologic observations, and, on the other hand, on clinical observations. But it must be remembered that the domain of the endocrine glands is as yet not sufficiently well known, and, furthermore, that it is often difficult to attribute with any certainty a given glandular syndrome to congenital syphilis. The greatest caution is required if one wishes to avoid wandering off in hazardous attempts to extend a domain that is clouded in mystery and which has very delicate boundaries. There are, however, at present a group of syndromes, uniglandular and pluriglandular, and of endocrine manifestations more or less incomplete or masked which appear to be ascribable to congenital syphilis, and which in their development and in their morphogenesis are becoming more clearly recognized every day. A therapy based on antisyphilitic etiologic treatment and on opotherapeutic pathogenic treatment, closely associated, is the consistent obligation growing out of these new conceptions. Drs. André Leri and R. Bartholemy of Paris expressed the same view. They hold that while, objectively and scientifically, one may accept as unquestionable evidence of an association of congenital syphilis and endocrine affections, there is nevertheless a lamentable dearth of well established, demonstrable facts bearing on endocrine congenital syphilis. We should not conclude that congenital syphilis of the endocrine glands does not exist. It is, in fact, proved anatomically (by manifold observations in the fetus and the new-born).

THE PRESENT STATUS OF TREATMENT OF LUPUS AND TUBERCULOSIS OF THE SKIN

Halkin of Liége, Paul François of Antwerp and L. Dekeyser of Brussels presented a comprehensive paper on the present status of treatment of lupus and tuberculosis of the skin. They agree in their conclusion that tuberculosis of the skin is only an expression of general tuberculosis and demands therefore general treatment. The general treatment that gives the best results is by means of general light baths. General treatment with baths of salts of rare earths or benzylcinnamate, while valuable, is not as effective as artificial heliotherapy and may present as well certain objections. Treatment with tuberculin has made no progress and is useful only in attenuated tuberculosis. Cryotherapy has proved its usefulness in many forms of tuberculosis of the skin; its chief indication is in erythematous lupus. Other methods of local treatment, notably scarification and inunction with pyrogallocreosote ointments, retain their value and their indications according to the type and the localization of the lesions. They may be combined with phototherapy. Roentgen-ray treatment has not accomplished what was expected of it.

BERLIN

(From Our Regular Correspondent)

Sept. 18, 1926.

The Economic Distress of the Younger Physicians

As already mentioned in a previous letter, the number of physicians in Germany, in spite of the considerable number who fell during the war, has increased greatly since the outbreak of hostilities. This seems surprising when it is recalled that Germany has ceded to France, Poland and Denmark large portions of its former territory. This, however, has not affected the situation as much as might be supposed, for many of the physicians who were practicing in the ceded regions have taken up their abode in the territory that remains. In the territory ceded to Poland and Denmark, a considerable proportion of the German physicians decided not to seek other fields. According to the recent edition of the Reichs-Medizinalkalender, the number of practicing physicians in Germany has increased from 35,000 in 1913 to 44,500 in 1925.

The main reason for this increase is the fact that, during the war, students who had nearly completed their courses in medicine were allowed to graduate, and the conditions for graduation were lighter than usual. The result has been to produce an excess of physicians, which, in view of the present restricted sources of income, constitutes an additional burden on the medical profession. Whereas, before the war, there were 5.26 physicians to each 10,000 of population, the proportion is now 7.11. Under these conditions, newly graduated physicians are bound to suffer economic distress. For that reason, the executive committee of the Leipzig League, which is the economic department of the Verband der Aerzte Deutschlands (league of German physicians), or Hartmann league, has evolved a plan which will enable older physicians to renounce their panel practice and thus create openings for younger physicians.

It is planned to create monthly or annual benefits for physicians above 70 years of age (and, in exceptional cases, for physicians more than 60 years old, in case the funds suffice) who will voluntarily relinquish their panel practice. The minimal annual benefit has been tentatively fixed at 1,200 marks and the maximal benefit at 3,000 marks.

The funds for this purpose would be raised by increasing by 1 mark the monthly dues of members of the league. Since the league has nearly forty thousand members, the proposed increase will bring in nearly half a million marks annually. The provincial leagues also will be asked to contribute to the benefit fund, and, finally, also the physicians newly admitted to the panel. The collected contributions would be administered by the central treasury, which would disburse 1,000 marks to the provincial league for every elderly physician on

the panel whose offer to retire was accepted. The provincial league would collect and supply the remaining sum needed. The old age pensions that are in vogue in many provinces must, however, remain unaffected and unaltered.

Despite these efforts, the fact that during 1925 alone the number of medical students in Prussia increased from 2,900 up to 3,700 is cause for apprehension. It has been urged that the governments of the provinces be requested to prohibit full-time physicians, holding official positions, from performing panel practice. Further, it has been recommended that the number of part-time township physicians (*kreisärzte*) performing panel practice be determined, with a view to making all such posts full-time positions within from three to five years.

Even though the measures cited might bring temporary relief, the fact remains that the need for panel physicians has been covered for at least the next ten years by the physicians who have not yet been admitted to panel practice but who are already practicing in clinics, hospitals and elsewhere, together with the older students who are in their "clinical semesters." For that reason, the executive committee of the Hartmann League will see to it that the younger students of medicine, graduates of the gymnasiums and premedical students are warned of the difficulties before them.

Mortality Statistics in Prussia

According to *Statistische Korrespondenz*, the number of deaths occurring in Prussia in the fourth quarter of 1925 was almost 5,000 greater than in the corresponding quarter of 1924. The mortality rate per thousand population has increased from 11.617 to 12.056. The increase extends over almost all the important causes of death. Deaths from communicable diseases increased by around 2,000, or from 2.547 to 2.745 per thousand population. The increase is due chiefly to the higher mortality from measles and German measles (1,400 deaths in the last quarter of 1925 as against 185 in the correspondingly quarter of 1924), and pneumonia, whereas the mortality rates of the remaining communicable diseases, including tuberculosis, were, for the most part, somewhat lower than in 1924. Special attention must be called to the constant increase in mortality from cancer and from suicide.

Severe Typhoid Epidemic in Hanover

That Germany has, of late, been visited by several typhoid epidemics has already been mentioned. Hanover recently suffered a severe outbreak. Up to September 17, more than 1,500 cases had been reported, while forty deaths have already occurred. The rapid and extensive spread of the disease points to the likelihood that the city water supply is contaminated, although typhoid bacilli have not been found in the water as yet. Public inoculations against typhoid have been begun. As the municipal hospitals are not adequate to care for such a large number of typhoid patients, transportable barracks have been supplied by Berlin. In addition, several schools in Hanover have been converted into temporary hospitals.

A German-Russian Scientific Expedition

In the spring of 1927, a German-Russian scientific expedition to the Buryat-Mongol Republic, in which syphilis is widely prevalent, will be organized. Four Russians, under the leadership of Professor Finkelstein, and four German scientists, headed by Professor Wilmans of Heidelberg, will take part in the expedition. The expedition will cover a period of about four months. In May, 1926, Professors Wilmans and Stühmer made a trip to Moscow to discuss with Professor Bronner, the director of the venereal disease section of the public health service, the detailed plans of the expedition, and to familiarize themselves with the conditions in the republic to be visited.

Marriages

ANTHONY AMBROSE, Newark, N. J., to Miss Margaret W. Bond of Nesquehoning, Pa., September 1.

MICHAEL P. CORCORAN to Miss Caroline Gartland Horan, both of Philadelphia, September 29.

MAX W. MYER to Mrs. Alma M. Drey, both of St. Louis, July 31, at Great Neck, N. Y.

GEORGE H. GARRISON, White Hall, Ill., to Miss Anna Pessel of Belleville, July 1.

ROBERT NEIL CROW to Miss Helen Joanna Byrne, both of Chicago, July 28.

Deaths

Bertrand L. Jones ✠ Detroit; Kentucky School of Medicine, Louisville, 1905; member of the American Psychiatric Association, the Association for Research in Nervous and Mental Diseases and the Central Neuropsychiatric Association; formerly assistant, and instructor in psychiatry, University of Michigan Medical School, Ann Arbor, and assistant professor of neurology and psychiatry, Detroit College of Medicine and Surgery; on the staffs of the Detroit Eye, Ear, Nose and Throat, Harper and Highland Park (Mich.) hospitals, and at one time on the staff of the City of Detroit Receiving Hospital; aged 48; drowned, July 19, in Lake Erie.

Franz Ludwig Friedrich Ernst Pfaff, Boston; University of Frankfort-on-the Main, Germany, 1893; L.S.A., London, England, 1894; formerly professor of pharmacology and therapeutics, Medical School of Harvard University, Boston; member of the American Gastro-Enterological Association; at one time on the staff of the Massachusetts General Hospital; aged 66; died suddenly, September 26, at New York, of cerebral hemorrhage.

James Brownrigg Ferguson, 1st Lieutenant, U. S. Army, retired, St. Paul, Jefferson Medical College of Philadelphia, 1866; veteran of the Civil and Spanish-American wars; for many years a contract surgeon in the U. S. Army, and a first lieutenant, Medical Reserve Corps on active duty; was retired as first lieutenant, medical corps in 1911; aged 86; died, September 2, of complications following influenza.

George Marvine Tuttle ✠ St. Louis; Medical Department of Columbia College, New York, 1891; clinical professor of pediatrics, Washington University Medical School; member of the Central States Pediatric Society; on the staffs of St. Luke's and St. Louis Children's hospitals; author of "Manual of Diseases of Children"; aged 60; died, September 2, at London, England, of heart disease.

Heman Spalding ✠ Chicago; Chicago Medical College, 1881; formerly associate clinical professor of medicine, Rush Medical College; consulting physician to the Municipal Contagious Disease Hospital; for many years chief of the bureau of communicable diseases, Chicago Health Department; aged 75; died, September 22, at the Wesley Memorial Hospital, of chronic myocarditis and hypertension.

Milton C. Haworth, Noblesville, Ind.; Indiana Medical College, Indianapolis, 1877; member of the Indiana State Medical Association; secretary of the Noblesville board of health; for many years president of the First National Bank, and member of the school board; aged 75; died, September 16, in a hospital at Kokomo, of injuries received in a fall.

Clarence Ardeen Peaslee ✠ Bath, Maine; Medical School of Maine, Portland, 1883; president of the Sagadahoc County Medical Society; formerly member of the state legislature; for five years member of the city council; on the staff of the Bath City Hospital; aged 71; died, September 11, of cirrhosis of the liver.

Joseph Avery Head, Wells, N. Y.; Syracuse University College of Medicine, 1908; formerly county coroner, and local health officer; justice of the peace; aged 45; died, September 20, at the Nathan Littauer Hospital, Gloversville, of a skull fracture, received when struck by an automobile.

George Morgan Muren ⊕ New York; Long Island College Hospital, Brooklyn, 1893; Spanish American and World wars veteran; formerly on the staff of the Norwalk (Conn.) Hospital; aged 57; died, September 23, at the Christ Hospital, Jersey City, following an appendectomy.

Frank Leslie Day ⊕ Providence, R. I.; Medical School of Harvard University, Boston, 1889; past president of the Rhode Island Medical Society; on the staffs of the Providence City, Rhode Island and St. Joseph's hospitals; aged 70; died, September 21, of heart disease.

Samuel Davis Wetherby, Middletown, Ky.; Kentucky School of Medicine, Louisville, 1894; served during the World War; formerly member of the school board; aged 57; was killed, September 23, at Avoca, when the automobile in which he was driving was struck by a train.

Arthur Middleton Jacobus ⊕ New York; Bellevue Hospital Medical College, New York, 1876; past president of the Medical Society of the County of New York; formerly on the staff of the Presbyterian Hospital; aged 72; died, September 18, of cardiorenal disease.

George Crockett Paschall ⊕ Arrington, Tenn.; University of Louisville (Ky.) School of Medicine, 1890; past president of the Williamson County Medical Society; aged 60; died, September 22, at St. Thomas Hospital, Nashville, of cardiorenal disease.

August M. Kotzebue, Moulton, Texas; Illinois Medical College, Chicago, 1901; member of the State Medical Association of Texas; served during the World War; aged 57; died, July 24, of an overdose of morphine, presumably self-administered.

Wilmon Whildin Leach ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1892; for six years served as physician in charge of the Eastern State Penitentiary; aged 55; died, September 26, of heart disease.

James MacGinnis Balph, Syria, Latakia, Turkey; Cincinnati College of Medicine and Surgery, 1877; for thirty-nine years served as a medical missionary; aged 75; died, September 7, at the Allegheny General Hospital, Pittsburgh.

Alfred J. Hopkins, Pittsburgh; McGill University Faculty of Medicine, Montreal, Que., Canada, 1883; member of the Medical Society of the State of Pennsylvania; aged 64; died, September 7, of acute nephritis and cerebral hemorrhage.

George R. Hawley, Brooklyn; Long Island College Hospital, Brooklyn, 1892; member of the Medical Society of the State of New York; aged 62; died, September 25, at the Brooklyn Hospital, of heart disease.

Fred F. Fulton, Oklahoma City, Okla.; Memphis Hospital Medical College, 1906; member of the Oklahoma State Medical Association; aged 42; died, September 15, at the Memphis (Tenn.) General Hospital.

Samuel Breck, Boston; Medical School of Harvard University, Boston, 1886; formerly on the staff of the Boston City, and the Boston Floating hospitals; aged 64; died, September 12, of arteriosclerosis.

John Sylvester Brownrigg ⊕ Boston; Medical School of Harvard University, Boston, 1887; for thirty years member of the Boston Health Department; aged 69; died, September 21, of coronary sclerosis.

Donald Lee Miller, Indianapolis; Detroit College of Medicine and Surgery, 1911; member of the Indiana State Medical Association; served during the World War; aged 40; died, in September, of heart disease.

Percy Isaac Price, Florence, Ala.; Vanderbilt University Medical Department, Nashville, 1886; member of the Medical Association of the State of Alabama; aged 65; died, August 22, of cerebral hemorrhage.

Silas N. Johnston, Newport, Ky.; University of Louisville School of Medicine, 1888; aged 70; died, in September, at St. Elizabeth's Hospital, Covington, of cerebral hemorrhage and arteriosclerosis.

Edwin Howard Brigham, Brookline, Mass.; Medical School of Harvard University, Boston, 1868; member of the Massachusetts Medical Society; Civil War veteran; aged 85; died, September 14.

Sanders McAllister Payne, New York; Vanderbilt University Medical Department, Nashville, 1875; aged 75; died, September 10, at the Physicians' Home, Caneadea, of cerebral hemorrhage.

John Alexander MacKethan ⊕ Fayetteville, N. C.; North Carolina Medical College, Charlotte, 1901; formerly on the staff of the Highsmith Hospital; aged 51; died, September 10, of nephritis.

John T. Moncrief, Columbus, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1890; aged 65; died, September 28, at White Sulphur Springs, following a long illness.

Theodore Ellison Keelor, Lebanon, Ohio; Medical College of Ohio, Cincinnati, 1895; member of the Ohio State Medical Association; aged 64; died, September 4, of diabetes mellitus.

Susan George Southerland, Brooklyn; Cornell University Medical College, New York, 1899; aged 64; died suddenly, September 24, at Dunkirk, N. Y., of dilatation of the heart.

John Ketchum, Buffalo; University of Buffalo Department of Medicine, 1885; aged 82; died, September 26, at the Presbyterian Hospital, New York, of lymphosarcoma of the prostate.

John Bunyan Chapman, Paris, Texas; Kentucky School of Medicine, Louisville, 1887; member of the State Medical Association of Texas; aged 60; died, June 28, of sepsis.

Harriet Augusta Loring, Brooklyn; Boston University School of Medicine, 1876; also a pharmacist; aged 78; died, September 15, at Asbury Park, N. J., of heart disease.

Samuel Edgar Butt ⊕ Nelsonville, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 69; died, September 19, of complications following hypertrophy of the prostate.

Vincent F. Lowe, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1893; aged 53; died, September 7, of acute dilatation of the heart.

Patrick H. Kearney, Archbald, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1891; aged 68; died, in August, of acute dilatation of the heart.

Julia Howard Lombard Muller, New York; Woman's Medical College of the New York Infirmary for Women and Children, 1886; aged 75; died, September 20.

Leonard Zepp, Westminster, Md.; University of Maryland School of Medicine, Baltimore, 1868; aged 81; died, August 11, at the home of his daughter in Baltimore.

Wirt Peebles Marks, Claremont, Va.; Medical College of Virginia, Richmond, 1891; member of the Medical Society of Virginia; aged 55; died, September 2.

Richard Clough Thompson, Pine Bluff, Ark.; Bellevue Hospital Medical College, New York, 1884; aged 65; died, September 15, at Eureka Springs.

Leon McCollum, Bettsville, Ohio; College of Physicians and Surgeons, Keokuk, Iowa, 1880; aged 70; died, September 21, of carcinoma of the stomach.

Kristian Arnt Wadel ⊕ Fargo, N. D.; Bellevue Hospital Medical College, New York, 1898; on the staff of St. Luke's Hospital; died in September.

William Ker Shea ⊕ Philadelphia; L.R.C.S., Ireland, 1881; L.R.C.P., Edinburgh, Scotland, 1885; aged 68; died, September 18, of heart disease.

William Horace Stafford, Newcastle, Ind.; Physio-Medical College of Indiana, Indianapolis, 1887; aged 64; died, September 18, of carcinoma.

Arthur Talbot Lincoln, Dennysville, Maine; Medical School of Harvard University, Boston, 1889; died, September 5, at a hospital in Boston.

James Nelson Richards, Warkworth, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1909; died suddenly, June 11.

Daniel McHugh McKay, Sr., Homestead, Fla.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 84; died, in September.

James Hunter Jones, Anniston, Ala.; Atlanta (Ga.) Medical College, 1865; aged 87; died, recently, at Gadsden, of cerebral hemorrhage.

Adelbert Eugene Crowell, Sidney, N. Y.; University of Buffalo Department of Medicine, 1879; aged 76; died, September 3.

Henry A. C. Bagley, Americus, Ga.; American University of Pennsylvania, Philadelphia, 1874; aged 75; died, August 22.

A. Nicholaus Kittilsen, Nome, Alaska; Rush Medical College, Chicago, 1894; aged 57; died, September 3.

Isaac Stearn, Philadelphia; Baltimore University School of Medicine, 1893; aged 82; died, September 11.

Philemon T. Rainey, Charleston, Miss.; Memphis Hospital Medical College, 1896; aged 77; died, recently.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

TOXIVI AND TOXOK NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

Toxivi is stated by the Cutter Laboratory, Berkeley, Calif., to be an extract of *Rhus toxicodendron* in a dilute alcoholic solution for use in prophylactic and therapeutic treatment of dermatitis caused by poison ivy (*Rhus toxicodendron*). Similarly, Toxok is claimed by this firm to be an extract of *Rhus diversiloba* for use in prophylactic and therapeutic treatment of dermatitis caused by poison oak (*Rhus diversiloba*).

In the advertising it is claimed that these preparations are "standardized chemically and physiologically," but the method of standardization is not furnished, neither is any information furnished to show the drug strength of the preparations, nor are the details of the method of manufacture furnished.

No evidence was furnished by the Cutter Laboratory to show that "Toxivi" and "Toxok" presented any originality on the part of the firm. In consideration of the benefits which may come from the discovery of a therapeutic agent, the Council may recognize a nondescriptive proprietary name for such a product; in general, it disapproves of such names on account of the abuses which arise from their use. Since Toxivi and Toxok appear to be unoriginal preparations, these names could not be recognized.

As a result of an examination of the recent evidence for the value of rhus preparations, the Council reached the conclusion that there is no acceptable evidence for the claim that they are useful as a means of preventing attacks of rhus poisoning; therefore, the Council cannot accept the claim of the Cutter Laboratory that these preparations are useful for the prevention of rhus dermatitis.

The Council finds Toxivi and Toxok unacceptable for New and Nonofficial Remedies, because the statement of their composition and strength is indefinite, because the claims advanced for them are not warranted, and because they are unoriginal preparations marketed under proprietary nondescriptive names.

FIRMA CHLORO NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

According to the advertising of the Chloro Chemical Corporation, Bloomfield, N. J.: "Firma Chloro is made by mixing the following: Chloride of Lime, Potassium Chlorate, Tincture of Iodine, Picric Acid, Bicarbonate of Soda and Water."

In the information furnished the Council by the Chloro Chemical Corporation, the composition of Firma Chloro is given thus:

"It is a mixture of the following ingredients, expressed in exact quantities sufficient for the composition of one gallon. Chloride of Lime, 2 oz.; Potassium Chlorate, 2 drams; Tincture of Iodine, 2 oz.; Picric Acid, 2 oz.; Bicarbonate of Soda, 2 drams; Glycerine, 126 oz.; Water, 2 oz."

A report of a firm of chemists employed by the Chloro Chemical Corporation states that the sample was "essentially a solution in glycerine, of sodium and calcium hypochlorite, calcium carbonate, and hydroxide, calcium chloride, calcium iodide, potassium chlorate, and a salt of picric acid."

The purpose of the potassium chlorate in the formula is not clear; unless it can be shown to have a definite action, it must be considered as an unessential constituent. While tincture of iodine is used in the preparation of the mixture, the product as marketed is admitted not to contain free iodine. Although it is generally held that in alkaline solution free iodine is changed to iodate, and that iodate is formed in the presence of chlorate, the Chloro Chemical Corporation claims that iodate is absent. No matter whether the iodine is present as iodate or iodide, it must be considered as an unessential constituent, unless definite evidence is produced to the contrary.

Whether in the proportion of 2 ounces of picric acid to the gallon, as stated in the formula submitted by the firm for the preparation of Firma Chloro, or of 0.029 per cent of sodium picrate, as given by the analytic report submitted by the firm, no reason is given for the presence of this ingredient.

In the advertising the product is said to contain 0.04 per cent of available chlorine, and the claims for its efficacy seem to be based on this very small percentage of potent chlorine. The label directs that Firma Chloro be used undiluted; in the report submitted, Firma Chloro, undiluted, or in aqueous solution of 1 in 2 and 1 in 5, was said to be as effective in five minutes as a Dakin solution of 1 in 50 and 1 in 75, or phenol 1 in 100. In serum solution, Firma Chloro 1 in 2 was not as effective in five minutes as Dakin's Solution 1 in 50 or phenol 1 in 100.

Under the heading "Some Advantages," it is claimed that Firma Chloro is stable: "It lasts many months and with its chlorine efficiency unimpaired." This is an unsupported statement; no tests made at the beginning and end of the period are given. One report contains the statement: "While we have no definite knowledge as to the original strength, we can state with certainty that the samples examined were sufficiently stable to retain the efficiency indicated in the tables, for at least two weeks."

Firma Chloro is inadmissible to New and Nonofficial Remedies because it is a needlessly complex mixture marketed under a noninforming name.

Correspondence

"MICROBE HUNTERS"—A DENIAL

To the Editor:—Our attention has been drawn to a book called "Microbe Hunters" recently published by Harcourt, Brace & Company, New York, and alleged to have been written by one Paul de Kruif—a gentleman whose name is quite unknown to us. The work evidently aims at being a kind of popular history or rather romance regarding medical discovery, and mentions us among others. We should like an opportunity to say, for the information of your readers, that the author's statements about ourselves and our researches are almost entirely apocryphal; that they are not supported by reference to the original literature; that they are clearly derived almost only from his own imagination or from spurious prompting by others; and that his knowledge of the subjects with which we have been concerned is obviously incomplete.

We have been legally advised that some of his assertions regarding ourselves are libelous according to British laws; but in America we have no means of protection except a public denial of the truth of his allegations, and we therefore trust that you will allow us to publish such a denial, as emphatically as we may, in your columns.

Dr. Cuthbert Christy's signature does not appear on this letter, as he is in Africa; before sailing, however, he left us the following statement:

With regard to Chapter IX of Paul de Kruif's book "Microbe Hunters," I beg to emphatically state that it contains statements which are totally erroneous, misleading and some of them libelous. As an example I will quote paragraph 2, page 264, which reads: "The third member (viz., myself) became disgusted with the ignorance and failures of his two colleagues and went off prospecting for rubber. . . ." This paragraph is absolutely untrue and libelous. It suffices to say that I have always given credit to Castellani for his discovery of the

trypanosome as the etiological agent of sleeping sickness—see for instance my letter to the *Morning Post*, August 22, 1923. As regards my abandoning my colleagues and going off prospecting for rubber, this is entirely libelous. I never abandoned my colleagues and, as a matter of fact, I did not get interested in rubber until 1906, which was three years after the labours of the First Sleeping Sickness Commission were completed.

Aldo Castellani.
George C. Low.
David Nabarro.
Ronald Ross.

THE PROLONGATION OF INFANCY

To the Editor:—A significant and timely editorial is that in The Journal, September 25, on "Relative Development of Uterus and Ovaries." As you intimate, the "sociological implications" are most important. For years, John Fiske's contribution to biology and sociology has impressed me. Both the medical profession and society at large should be giving heed to it—i. e., "The period of infancy of the human race is twenty-one years."

Scott P. Child, M.D., Kansas City, Mo.

A DOCTOR WANTED

To the Editor:—There are now only five physicians in Lewis County, and three of these are devoting little time to practice.

This leaves Dr. Bertram and myself here at Vanceburg, and we have more than we can do most of the time. A state road comes across the county to Vanceburg, and almost all side roads are bad, especially in winter time. We need a doctor badly at Garrison, a good location; need one at Petersville, and could use a good man right here in Vanceburg. We need fellows who are hustlers and not afraid of work, men who can drive their own car and ride a mule if necessary; men who can do all kinds of minor surgery without a trained assistant, and who have the utmost confidence in their own ability.

J. D. Liles, M.D., Vanceburg, Ky.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HARROWER'S ORGANOTHERAPEUTIC INDICATOR

To the Editor:—Why does the young medical aspirant of today have to spend his time in college? Here is the thing from A to Z: Turn the indicator, get the number, "see the other side for dose and price" and collect the fee? Isn't it interesting?

M.D., Connecticut.

Answer.—The "indicator" referred to by our correspondent is a red arrowhead, the shaft of which is a slot in a small celluloid disk superimposed on a larger disk. The device is a method used by the Harrower Laboratory, Inc., to advertise its line of pluriglandular products. Around the edge of the larger disk are the names of some seventy diseases or disease conditions. When the red arrow is rotated to point to any one of these names, one or two numbers become visible through the slot. These refer to the list of "pluriglandular formulas" on the back of the disk. Each condition has its appropriate(?) formula. A few examples may be cited at random. For diabetes mellitus the "indication" is number 44, Pan-Secretin, a shotgun preparation said to contain "Pancreas islets (tail) gr. 3½, Secretin Extract (Duodenal) gr. 1½." For "Backward Children" number 2 is recommended. This is Antero-Pituitary Co., another shotgun preparation said to contain "Pituitary (anterior lobe) gr. 2, Thymus gr. 1, Thyroid gr. ⅓ with Calcium Phosphorus Co. q. s. ad. gr. v." For "Heart Hurry" the red arrow shows number 6, Pancreas Co., which is said to contain "Adrenal and Pituitary (total) āā gr. ½, Ovarian Substance gr. 1, Pancreas (total) gr. 3." For "Asexualism" number 73 appears. This is Gonad-Ovarian Co. said to contain "Thyro-Ovarian Co. gr. 3, Spermin Extract and Pituitary (anterior) āā gr. 1½." All those named are tablets recommended for oral administration. There is also a list of "Polycrines" for subcutaneous or intramuscular injection. The prices range from $1 to $5 per hundred for the tablets and from $1.50 to $2 per 5 cc. ampule for the solutions.

In many instances the physician would no doubt secure equally good results by spinning the wheel, leaving the choice of a remedy to the fortunes of roulette.

The Council on Pharmacy and Chemistry has already reported on a number of the Harrower gland mixtures (The Journal, Jan. 18, 1919, p. 213), pointing out the lack of evidence for their efficacy when given by mouth and also the irrationality of prescribing mixtures that resemble those of the old fashioned shotgun nostrums. The fact that it is apparently profitable for the Harrower Laboratory, Inc., to send out such advertising as that just described is, to quote from a former reference to Pan-Secretin in The Journal (March 10, 1923, p. 717), "a sad reflection on those physicians . . . who allow themselves to be influenced by 'literature' that is sent out by the commercial houses."

TOXIN-ANTITOXIN FOR DIPHTHERIA—SCARLET FEVER PROPHYLAXIS

To the Editor:—1. How soon is it safe to give toxin-antitoxin after an injection of a prophylactic dose of antitoxin? 2. Is it safe to give toxin-antitoxin to a person who has had several doses of antitoxin for prophylaxis at intervals of months or a few years, when the last dose or two caused a local urticaria? 3. What is the best preparation of scarlet fever prophylaxis and curative serum? 4. What, if any, time should elapse between immunizing children against diphtheria and scarlet fever?

V. C. M., Macomb, Ill.

Answer.—1. It would be safe and proper to give toxin-antitoxin in from twelve to fourteen days after a prophylactic dose of diphtheria antitoxin.

2. Toxin-antitoxin in a person definitely sensitized to the proteins in diphtheria antitoxin might give rise to unpleasant reactions.

3. Preparations made under license from the Scarlet Fever Committee, Inc. However, all scarlet fever preparations are made under U. S. government license.

4. Experience does not indicate that it is necessary to allow any time to elapse between immunizing children against diphtheria and against scarlet fever.

ESTIMATION OF GUANIDINE—DIALYZED CALCIUM

To the Editor:—1. Can you give me some information as to where I can secure the technic for examination for guanidine in the blood? 2. I should like to know also of what value is an examination of dialyzable calcium in the blood.

W. G. Gamble, M.D., Charleston, S. C.

Answer.—1. A method describing the technic of estimating guanidine in the blood is that of Findlay and Sharpe (*Quart. J. Med.* **13**:433 [July] 1920). A slight modification has been described by Nattrass and Sharpe (*Brit. M. J.* **2**:238, 1924). A recent publication by Pfiffner and Myers (*Proc. Soc. Exper. Biol. & Med.* **23**:830 [May] 1926) is simply a preliminary report.

2. The exact value of the examination for dialyzable calcium in the blood has not yet been determined. The subject is still in the stage of scientific experimentation.

TOXICOLOGY OF SACCHARIN

To the Editor:—Can you advise me of reference pertaining to the toxicology of saccharin, glucin and dulcin? What dose would be the limit of tolerance for twenty-four hours for each of these drugs? Please use the initials only.

H. M. J., M.D., Nebraska.

Answer.—The Referee Board of Food Inspection, in Decision 135, reported to the Secretary of the Treasury: "The continued use of gluside (saccharin) for a long time in quantities over 0.3 Gm. per day and especially over 1 Gm. per day is liable to impair digestion" (Herter and Folin, U. S. Dept. of Agric. Rep. 94, Washington, D. C., 1911).

R. J. E. Scott (Reference Handbook of the Medical Sciences **3**:702, 1914) gives the dose of dulcin at from 0.06 to 0.12 Gm.; but as much as 2 Gm. may be taken during twenty-four hours.

W. A. Uglow (*Arch. Hyg.*, 1925, nos. 3 and 4) considers dulcin unsuitable for constant use as a sweetening agent, as it yields amidophenols on decomposition when taken internally. Doses of 0.10 Gm. per kilogram given to animals have given rise to toxic symptoms attributable to amidophenols. Hence dulcin must be classed as a blood poison, and its use as a sweetening agent should be interdicted.

Glucin is a comparatively new sweetening agent, and satisfactory information regarding its toxicology does not seem available.

EPHEDRINE

To the Editor:—A drug called ephedrine is being prescribed by a member of the local medical school faculty for hay-fever, and the word has gone around that it is the latest Mayo Clinic remedy for this disease. Our local druggists are unable to throw any light on this drug, nor do they know the name of its manufacturer. Please omit name.

M.D.

ANSWER.—A report of the Council on Pharmacy and Chemistry on ephedrine was published in THE JOURNAL, Sept. 11, 1926. The same issue (page 836) contained a comprehensive report by K. K. Chen and Carl F. Schmidt, on the "Action and Use of Ephedrine."

RELATIVE VALUES OF DARE, SAHLI, VON FLEISCHEL, TALLQVIST AND OLIVER HEMOGLOBINOMETERS

To the Editor:—I am desirous of obtaining information as to the amount of hemoglobin in grams per hundred cubic centimeters which represents 100 per cent in the Dare, Sahli, von Fleischel, Tallqvist and Oliver hemoglobinometers.

R. A. K., M.D., Atlantic City, N. J.

ANSWER.—When one stops to realize that nearly all hemoglobinometers, which record the normal as 100 per cent, have a different hemoglobin equivalent and, further, that men, women and children have a different normal, it is apparent that considerable confusion would be avoided if all hemoglobin estimations were recorded in grams per hundred cubic centimeters or actual percentage, as is the case with other blood determinations. All instruments, if properly calibrated, would then yield the same results.

The following hemoglobinometers have apparently been calibrated on the basis of 100 per cent being equivalent to the grams of hemoglobin given below:

	Gm. per 100 Cc.
Dare	13.77
Haldane	13.8
Oliver	15.0
Von Fleischl-Miescher	15.8
Tallqvist	15.8
Sahli	17.2

The von Fleischl-Miescher is the most accurate of the older clinical instruments, and has been employed as a standard of reference for many instruments. For example, it is frequently stated in textbooks that the Sahli hemoglobinometer furnishes a reading of 109 in the von Fleischl-Miescher instrument, or an absolute quantity of hemoglobin of 17.2 grams. Tallqvist likewise employed the von Fleischl-Miescher instrument as his standard.

Haldane, who modified the older Hoppe-Seyler carboxyhemoglobin method, took an oxygen capacity of 18.5 per cent as his standard for men (equivalent to 13.8 per cent of hemoglobin). He states that with women he found an average oxygen capacity of 16.5, and with children 16.1 per cent, thus necessitating a different standard of 100 for women and children.

In 1916, Williamson made a study of the hemoglobin content of nearly a thousand normal persons in Chicago, employing the accurate spectrophotometric method of Hüfner. For the adult male he found an average of 16.92 Gm. of hemoglobin per hundred cubic centimeters of blood, and for the adult female, 15.53 Gm. In children, the figures varied roughly from 13 Gm. of hemoglobin at 6 years of age to 15 Gm. at 15 years.

Employing the Van Slyke method for oxygen capacity, Hayden in 1922 obtained an average hemoglobin of 15.83 Gm. on twenty males between 18 and 30 years of age, and 15.23 Gm. on twenty men between 30 and 50, and 13.34 Gm. on twelve women between 20 and 40. Recalculating his figures on the basis of 5 million red cells, he obtained an oxygen capacity of 20.85, equivalent to 15.57 Gm. of hemoglobin. He suggests that all hemoglobinometers should be calibrated with the Van Slyke apparatus on this basis, so that 100 per cent equals 15.6 Gm. per hundred cubic centimeters of blood.

Newcomer (1919, 1923) has modified the Sahli acid hematin method by substituting for the standard solution a colored glass disk which may be used with any colorimeter made on the Duboscq pattern. Employing the Van Slyke oxygen capacity method, Myers recalibrated one of these disks (B. and L.) and found it accurate to 1 per cent, or within the limits of accuracy of the method. At the suggestion of Newcomer, Bausch and Lomb have built a special hemoglobinometer in which this standard glass disk is employed. However, they did not follow his suggestion that the instrument be calibrated to read grams per hundred cubic centimeters, but made the normal of 100 equivalent to the 16.92 Gm. of hemoglobin per hundred cubic centimeters found by Williamson for adult men.

Inquiry is frequently made as to the accuracy of the Tallqvist scale. When this method is compared with the Newcomer method, it is found to give too low results on bloods with a high content of hemoglobin, and much too high results in cases of severe anemia.

CHLORATE OF POTASH TABLETS FOR STOMATITIS

To the Editor:—Recently I have read, I think in THE JOURNAL, about a treatment for various forms of stomatitis in which is mentioned the use of chlorate of potash tablets in the mouth, allowed to dissolve. I have a materia medica which also mentions the use of potassium chlorate internally for this condition. In "Useful Drugs" you mention the inadvisability of using potassium chlorate internally, so naturally I am on the fence. I shall appreciate knowing the right way of using potassium chlorate in the mouth and internally, if at all. If tablets can be used to dissolve in the mouth, at what intervals? Please use initials "D. D. S."

D. D. S., Chicago.

ANSWER.—The saturated solution of potassium chlorate has been much used as a mouth wash in stomatitis. It is also employed as a gargle in the treatment of pharyngitis. Its value in these conditions is, however, uncertain. Holding tablets of potassium chlorate itself in the mouth gives a more thorough medication and probably does no harm if one tablet is used at intervals of an hour or two. The internal use of potassium chlorate is no longer recommended by authorities on therapeutics, and it is recognized as one of the most toxic of the potassium salts. Large doses are actively poisonous, causing the formation of methemoglobin and the disintegration of blood corpuscles.

DISCHARGE FROM THE NIPPLE

To the Editor:—A woman, aged 24, for the past year has had an almost constant discharge from the left nipple, with a slight increase at the menstrual time. In character, the discharge is clear, amber and slightly viscid. During menstruation it becomes somewhat brownish, but is never bloody. She has been married two years, but has never been pregnant. Her general health is good and her past history negative. The breast appears normal, and the nipple is entirely normal except for a slight flattening; i. e., there is no mass, induration, or granular appearance of the nipple. I would much appreciate any information you can give me as to the nature of the condition, and especially as to treatment. Please omit my name.

M.D., New York.

ANSWER.—A bloody or blood-stained discharge is always of import because it is indicative of an underlying pathologic change somewhere in the breast or milk ducts. It is usually due to some form of neoplasm in or near the nipple and always requires a careful examination and diagnosis. The causes of bleeding from the nipple in the order of their frequency are duct carcinoma, Paget's disease of the nipple, duct papilloma, scirrhous carcinoma and sarcoma. Occasionally, an early suppurative mastitis will be accompanied by the discharge of blood from the nipple. The treatment consists in the early diagnosis and removal of the underlying pathologic condition.

QUESTION OF HABIT FORMATION FROM COCA IN PRESCRIPTION

To the Editor:—Would there be any danger of habit forming in the use of fluidextract of coca in 10 minim doses three times daily? The remedy is suggested in the following prescription by Anthony Bassler in his "Diseases of the Stomach and Upper Alimentary Tract."

℞ Fl. ext. cocae, Tinct. nucis vomicae āā ..... fl 3ii
Acidi phosphorici dil ..... fl 3vi
Syrupi zingiberis ..... fl 3iss
Aqua menth. piperitae ..... fl 3vi

M. et. ft. mist. sig: Tablespoonful in water after meals.

M.D. Michigan.

ANSWER.—No.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 9-10. Sec., Dr. James W. Walker, Fayetteville.

CALIFORNIA: Sacramento, Oct. 18-21. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

CONNECTICUT: Medical Examining Board, Nov. 9-10. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford. Homeo. Medical Examining Board, Nov. 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

MAINE: Portland, Nov. 9-10. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 9-11. Sec., Dr. Frank M. Vaughan, Room 144, State House, Boston.

MISSOURI: Kansas City, Nov. 16-18. Sec., Dr. James Stewart, Jefferson City.

NEVADA: Carson City, Nov. 1. Sec., Dr. Simon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 19-20. Sec., Dr. Charles B. Kelley, Trenton.

SOUTH CAROLINA: Columbia, Nov. 9. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Fort Worth, Nov. 16-18. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas, Texas.

VIRGINIA: Richmond, Dec. 7-10. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

WEST VIRGINIA: Morgantown, Nov. 23. Commissioner, The Public Health Council, Dr. W. T. Henshaw, Charleston.

THE AMERICAN MEDICAL UNIVERSITY

A Successor to Kansas City Diploma Mill

In the fall of 1924, two medical schools of Missouri, the Kansas City College of Medicine and Surgery and the St. Louis College of Physicians and Surgeons, were exposed as being engaged in the sale of medical diplomas. An investigation was made by the Missouri State Board of Health which led to the revocation of the charter of the Kansas City College of Medicine and Surgery, June 23, 1926. July 29, 1926, a charter was issued to the American Medical University of Kansas City, which was "opened for business," Aug. 9, 1926.

The new institution professes to teach the eclectic system of medicine, and occupies the buildings formerly occupied by the Kansas City College of Medicine and Surgery. Of the three persons named as the incorporators of the new institution, two received diplomas from the Kansas City College of Medicine and Surgery.

According to an item in the Kansas City *Journal* of Aug. 20, 1926, Dr. D. R. Alexander had much to say about the new school, its course of instruction and the number of its teachers, although he is quoted as having stated that he is "not connected in any way with the new school," that "none of the officers or members of the staff of the ousted college are connected with the new school," and that he "intended to devote his time to private practice."

The new school is said to have leased the building from the "Eclectic Building Company," which "owns the building." The news reports state also that Dr. Alexander, the secretary of the ousted college, is secretary of the building company.

The following is a copy of the articles of association and incorporation of the new medical school:

ARTICLES OF ASSOCIATION AND INCORPORATION

KNOW ALL MEN BY THESE PRESENTS:

That we, the undersigned, for the purpose of forming a corporation under the laws of Missouri relating to manufacturing and business companies, have entered into the following agreement:

1. That the name of the corporation shall be AMERICAN MEDICAL UNIVERSITY.

2. That the corporation shall be located in Kansas City, Jackson County, Missouri.

3. That the amount of the capital stock is Ten Thousand Dollars ($10,000) divided into one hundred (100) shares of the par value of One Hundred Dollars ($100) each; that fifty per cent of the authorized capital stock thereof has been in good faith subscribed and actually paid up in lawful money of the United States, and is in the custody of the persons named as the First Board of Directors.

4. That the names, places of residence of the shareholders and the number of shares subscribed by each are:

Frederick E. Johnson, Kansas City, Mo., 48 shares.
John L. Glines, Kansas City, Mo., 1 share.
M. L. King, Kansas City, Mo., 1 share.

5. That the Board of Directors shall consist of three shareholders, and the names of those agreed on for the first year are:

FREDERICK E. JOHNSON
JOHN L. GLINES
M. L. KING

6. That the corporation shall continue for a period of fifty years.

7. That the corporation is formed for the purpose of giving instruction and courses of study in medicine, materia medica, clinics, therapeutics, surgery and pathology, and in connection with the foregoing to maintain clinics, dispensaries and hospitals; to issue to those who have pursued such courses of instruction therein as entitle them to the same, and to such as have duly completed such courses, the degree of Doctor of Medicine (M.D.); also granting of diplomas to those who have not completed the course necessary to obtain the degree of "Doctor of Medicine," showing the completion of such work as they may have successfully completed while in the institution, and to build, construct, buy, lease or otherwise acquire, equip, maintain and own such real estate or other property as is necessary for the purpose of conducting a medical college and hospital in connection therewith, and in general to do all manner of things necessary or useful to a business of this kind.

IN TESTIMONY WHEREOF, we have hereunto set our hands this 26th day of July, 1926.

(Signed) FREDERICK E. JOHNSON
JOHN L. GILES
M. L. KING

STATE OF MISSOURI } ss
COUNTY OF JACKSON }

On this 26th day of July, 1926, before me personally appeared Frederick E. Johnson, John L. Glines and M. L. King, to me known to be persons described in and who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed.

In testimony whereof, I have hereunto set my hand and affixed my notarial seal the day and year last above mentioned.

L.S. (Signed) CHARLES P. DALLAM,
Notary Public within and for Jackson County, Missouri.
My commission expires March 14th, 1929.

STATE OF MISSOURI } ss
COUNTY OF JACKSON }

The Undersigned, Frederick E. Johnson, John L. Glines and M. L. King, being all the subscribers, including parties selected as Directors for the first year, to the above and foregoing Articles of Agreement for the incorporation of the AMERICAN MEDICAL UNIVERSITY, being duly sworn upon their oaths each did say that the statements and matters set forth therein are true.

(Signed) FREDERICK E. JOHNSON
JOHN L. GLINES
M. L. KING

Subscribed and sworn to before me this 26th day of July, 1926.

L.S. (Signed) CHARLES P. DALLAM,
Notary Public, within and for Jackson County, Missouri.
My commission expires March 14, 1929.

Filed for record and duly recorded in my office on this 26th day of July, A.D., 1926, at 12 o'clock 45 minutes P. M.

(Signed) CHARLES H. MOORE, Recorder.
By K. M. WOODS, Deputy.

STATE OF MISSOURI } ss
COUNTY OF JACKSON }

I, Charles H. Moore, Recorder of Deeds within and for the County of Jackson aforesaid, do hereby certify that the above and foregoing is a full, true and complete copy of the Articles of Association and Incorporation, acknowledgment and affidavit and note of Record thereon American Medical University as the same appears of Record in my office in Book Series B2731, Page 39 and following.

IN TESTIMONY WHEREOF, I hereunto set my hand and affix the seal of said office, at Kansas City, Mo., this 26 day of July, A.D. 1926.

L.S. (Signed) CHARLES H. MOORE, Recorder.
By J. L. SULLIVAN, Deputy.

It is interesting to note in the articles that of the 100 shares of the capital stock, forty-eight are assigned to Dr. Frederick E. Johnson who, the records show, received a diploma from the Kansas City College of Medicine and Surgery, bearing the date of 1921. Glines and King have one share each. No doubt, Alexander owns the other fifty shares—a controlling interest in the institution.

Nominally, therefore, Alexander "has no connection with the new institution." Nevertheless, according to the news statements, he has had a lot to say about it, seems to know all about it, and is also secretary of the Eclectic Building Company. Thus far there is nothing to indicate that the new institution will in any way differ from its parent.

Delaware June Examination

Dr. Henry W. Briggs, president of the Medical Council of Delaware, reports the written and practical examination held at Wilmington, June 15-17, 1926. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seven candidates were exam-

ined, all of whom passed. Three candidates were licensed by endorsement of their credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1925)	86.4
Loyola University School of Medicine		(1925)	83.1
Hahnemann Med. College and Hospital of Philadelphia		(1925)	88.6
90:1, 94.5			
Temple University Department of Medicine		(1925)	85.4
University of Toronto Faculty of Medicine		(1924)	83.5

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Maryland School of Medicine		(1905)	Maryland
(1921) New York			
University of Pennsylvania School of Medicine		(1920)	W. Virginia

Book Notices

A BIPOLAR THEORY OF LIVING PROCESSES. By George W. Crile. Edited by Amy F. Rowland. Cloth. Price, $5. Pp. 405, with 62 illustrations. New York: The Macmillan Company, 1926.

The author has collected in a single volume the results of researches published from time to time since 1898, together with the interpretations that he places on those results, and a bibliography of collateral material that has been of value to him. The essential conception is that all living processes are electrical phenomena, and, indeed, each cell of the body is itself an electrical cell—a bipolar unit. The nucleus is acid, the cytoplasm is alkali. They are separated by a semipermeable film of low conductivity. There is a difference in electric potential between the nucleus and the cell. Dr. Crile finds changes in oxidation associated with changes in electric tension. "Electricity," he says, "keeps the flame of life burning in the cell, and the flame (oxidation) supplies the electricity, which is the vital force of the animal." The cell is therefore an automatic unit. Dr. Crile has elaborated this fundamental conception, associating with it a theory of cancer production and of the mechanism of death. Indeed, he goes even farther in assigning to such organs as the brain and the liver the place of centers of positivity and negativity connected with functional or physical breakdown. An extensive appendix and bibliography which occupy almost half the volume provide the evidence on which these comprehensive conceptions are based. It would be idle in the scope of a brief book review to debate the argument or analyze the evidence here concerned. The ideas are strikingly in accord with much modern knowledge of biology, and the imaginative projections are the logical descendants of sound evidence and theory. One must unfortunately, however, conclude again and again in examining these ideas that most of the actual evidence necessary to prove them individually still remains to be produced. Dr. Crile has assembled an experimental laboratory with men fitted for the search. The continuation of his efforts will be observed with the greatest of interest.

THE DIFFICULTIES OF DR. DOGUBERE. By Walter R. Hadwen, M.D., President of the British Union for the Abolition of Vivisection. With an Introduction by George F. C. Searle, D.Sc., F.R.S., University Lecturer in Experimental Physics, Cambridge. Cloth. Price, 22/6 net. Pp. 596, with 584 illustrations. London: C. W. Daniel Company, 1926.

The name of Hadwen is already, or should be, familiar to most of our readers because of the tour made of the United States some years ago in which this fanatical opponent of experimentation on animals presented his views to hand-picked audiences of his followers. He now offers through a British publisher what is alleged to be a novel dealing largely with the subject of animal experimentation and composed of chapters which appeared in a British antivivisection magazine called the *Abolitionist*. The volume is astounding in more senses than one. It is remarkable because it is inconceivable that any one could ever wade through its 600 pages of mediocrity. It is apparently an attempt to place the entire case of the antivivisectionist before the general reader in story form. However, the story is conspicuous most of the time by its absence. The characters are named in the style popular among novelists previous to 1800, among them being "Lionel Merribhoy," "Mrs. Middlepath," "Dr. Simpkins" and "Mr. Vigor." No doubt the worst of these punning names is that of "Dr. Syringham." These characters instruct one another with long tables of statistics properly selected to make the points in the author's encyclopedia of dulness. The volume is illustrated with crude sketches and halftones printed on India tint paper, some pages containing merely the notice that the illustrations have been withdrawn because of the copyright law enforcement exercised on behalf of protesting authors. It would be nothing less than cruelty to animals to recommend to any one that he attempt to read this volume. Hence, we forbear.

LA PRATIQUE DES DÉVIATIONS VERTÉBRALES: (SCOLIOSE—CYPHOSE—LORDOSE). Par Carle Roederer, Assistant d'orthopédie a l'Hôpital Saint-Louis, et René Ledent, Directeur des cours d'éducation physique à Liége. Paper. Price, 42 francs net. Pp. 376, with 215 illustrations. Paris: G. Doin & Cie, 1926.

The authors review all types of scoliosis, laying emphasis on respiratory insufficiency, and discuss the postural, rachitic, congenital and paralytic types. An excellent chapter is devoted to the technic of examination, giving valuable details as to measurements and the taking of records. Differential diagnosis is then considered, and from this point of view such conditions as congenital elevation of the scapula, paralysis of the shoulder muscles, and Pott's disease are given close attention. The authors take great pains to go into the symptomatology of attitudinal, symptomatic, hysterical and other types, and to contrast them with the true or structural scoliosis, without adding anything particularly new to it but with a very clear and comprehensive view of the matter. The greatest value of the book lies in the chapter on treatment. Next to hygienic measures, considerable attention is given to the physiotherapeutic side of the treatment. Gymnastics, such as active shoulder girdle exercises, self-correction exercises, with or without apparatus, and exercises for the development of rhythm and sense of equilibrium, are gone into in careful detail, and many valuable illustrations are attached to the text. There is a large and comprehensive chapter on special corrective scoliosis gymnastics, which are termed compensatory and which cannot be overestimated in their importance. Here belong active and passive exercises in great variety, also the creeping exercises of Klapp. The final chapter deals with the mechanical fixation of scoliosis braces and plaster jackets. The flexed position of Abbott is thoroughly discussed and criticized. Of especial interest are the positions of Estor and Roederer for the application of plaster jackets.

NEW AND NONOFFICIAL REMEDIES, 1926. Cloth. Price, $1.50. Pp. 459. Chicago: American Medical Association, 1926.

The task of sifting out the therapeutically valuable and promising from the host of new preparations that the medical profession is importuned to adopt is an impossible one for the average busy practitioner. Yet if this is not done, advance is impossible. Recognizing these facts, the Council on Pharmacy and Chemistry of the American Medical Association publishes annually this book of disinterested critical information about the newer proprietary preparations and other unofficial remedies deemed worthy of recognition. The book represents the careful investigation and consideration during each year of a group of authorities in their several fields, who unselfishly take time from their regular work to do this service for the profession. The names of such men as Hunt of Harvard, Sollmann of Western Reserve, Mendel of Yale, Novy of Michigan, and Hatcher of Cornell give weight and authority to the pronouncements of the Council. In addition to the deliberations of these and other members, the Council receives the advice and help of a body of special consultants, each an authority in his field. New and Nonofficial Remedies is not a mere list of accepted products. It contains at the head of each group or classification of preparations an authoritative general article comparing the value of the articles included in the group with that of similar pharmacopeial or other established drugs which it is proposed that these preparations supplant. The book is copiously indexed. It contains also a valuable cumulative list of references to reports of the Council and to other publications

dealing with articles not described in New and Nonofficial Remedies. The present edition shows extensive revision of the article on the parathyroid gland and the addition of articles on the scarlet fever toxin and antitoxin, besides minor revisions in the descriptions of many articles to bring them abreast of current medical thought. Changes in classification and nomenclature made necessary by the new edition of the U. S. Pharmacopeia have been made. This book is a guidepost on the frontier of medical progress, an indispensable aid to the progressive physician.

MODERN VIEWS ON DIGESTION AND GASTRIC DISEASE. By Hugh Maclean, M.D., D.Sc., M.R.C.P., Professor of Medicine, University of London. Cloth. Price, $4. Pp. 170, with illustrations. New York: Paul B. Hoeber, Inc., 1926.

The demand for detailed information in a short and compact form is being met by a large number of works of the kind Dr. Maclean has produced. Considerable attention is devoted to the anatomy and physiology of the stomach. Other chapters are devoted to the fractional test meal, peptic ulcer, carcinoma, the general consideration of the examination of gastric contents and feces, radiologic examination, and a general consideration of treatment. On the whole, the presentation of the subject is fairly complete for a work of its size. One cannot agree with the author in many of his statements. The typical acid curve, arrived at from many fractional test meal examinations, has been shown recently to be more apparent than real. Aspirations of stomach contents taken within a few minutes of one another, with a change in the position of the tube or change in posture of the patient, have shown varying acidities. One can hardly agree with the author as to the frequency of functional gastric disease. Subsequent observation frequently reveals most of these conditions as obscure biliary tract disease, chronic appendicitis, colitis or renal disease. In pulmonary tuberculosis, etc., wherein formerly neurasthenia was a common diagnosis, now tuberculosis, hyperthyroidism or diseases of other endocrine origin are found. It is not so many years ago that the student was taught that vomiting of blood was a common symptom of ulcer. The error of this instruction need not be pointed out here.

Hyperacidity is not a common condition per se. Careful examination will reveal some cause for it in most cases. The underlying question is, rather, What is hyperacidity? The symptom of heartburn is certainly not an indication of hyperacidity, because it may be present with a normal, subnormal or even an acid condition. The very "marked belching up of carbon dioxide which generally follows the ingestion of alkali" is certainly not "excellent evidence of definite hypersecretion." The presence of local tenderness in ulcer is found too rarely to be of value in the differential diagnosis of "so-called hyperacidity and ulcer." Inability to make a diagnosis of ulcer in the absence of positive radiologic signs does not eliminate the possibility of the presence of ulcer. One wishes that the value of radiology were 100 per cent. The same applies to occult blood in the stool. The investigations that are now being made with histamine injections will in the future reveal that many of the so-called anacidities are only relative. It would be interesting to know how the author arrived at the conclusion that acute gastric ulcer is not as common now as twenty years ago. Only since the advent of roentgenology, and through the aid of surgeons, have we learned of the relatively infrequent occurrence of gastric as compared to duodenal ulcer; and, aside from biopsy, only by roentgenologic examination can we make an anatomic diagnosis of the ulcer. The author does not believe that carcinoma frequently develops on the site of an ulcer. This seems to be the prevailing opinion now. The absence of lactic acid in the gastric contents showing no free hydrochloric acid should be no bar against the diagnosis of carcinoma. Syphilis of the stomach occurs frequently enough to be given consideration in any work on gastric diseases, however short. The same should apply to a short consideration of impending or actual perforation of ulcer.

For the general practitioner who has few opportunities to see many patients suffering from peptic ulcer, this little volume might be recommended. It would be preferable under the circumstances to lay less stress on functional disorders, and, on the other hand, to emphasize our deficiencies in diagnostic acumen with a view of being on the lookout for the appearance of signs of actual organic trouble at some future time. As the knowledge obtained through the use of various instruments of precision increases, our need for these diminishes in proportion to our ability to correlate symptoms with the results obtained by the use of the latter. Until then it is far better for the average man to use them and not rely on his ability to make accurate diagnosis in 90 per cent of the cases without them.

UEBER DAS MORPHOLOGISCHE WESEN UND DIE HISTOPATHOLOGIE DER HEREDITAER-SYSTEMATISCHEN NERVENKRANKHEITEN. Von Karl Schaffer, O. Ö. Professor der Psychiatrie und Neurologie an der Universität Budapest. Heft 46. Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie. Herausgegeben von O. Foerster und K. Wilmanns. Paper. Price, 24 marks. Pp. 253, with 135 illustrations. Berlin: Julius Springer, 1926.

Heredity is a prominent factor in the etiology of many nervous diseases, including Friedreich's ataxia, hereditary spastic paraplegia, Huntington's chorea, amaurotic family idiocy and other similar conditions. They are all degenerative, and therefore may be termed heredodegenerative. Though differing clinically and pathologically, the majority of heredodegenerations, if not all, possess, according to Schaffer, certain fundamental histopathologic or morphologic features that are specific and common to all. The specific nature of such changes has been the subject of many publications by this indefatigable and brilliant neuropathologist, and the results of his twenty years' studies are incorporated in the present volume, dedicated to the Spanish neurohistologist Ramón y Cajal. Schaffer maintains that all heredodegenerative diseases are endogenous, the result of the disease of the hyaloplasm—the undifferentiated portion of the cytoplasm; only the neural ectodermal derivatives—the ganglion and glia cells—are affected, either as a whole, resulting in a condition known as amaurotic family idiocy, or partially, giving rise to other heredodegenerations (Friedreich's Ataxia, for instance). According to the localization and the segments of the central nervous system involved, various types of morbid conditions obtain, with the predominance of spastic, ataxic or amyotrophic, which is the rule of the mixed or combined types. The younger systems as a rule are more severely affected than the older ones. The nerve changes are mainly selective, as to the germinal layer *(Keimblattwahl)*, the segments (midbrain, cerebellum or spinal cord) or as to the systems of fibers or cells involved. In Huntington's chorea, for instance, such a selective lesion is seen in the fact that only the ganglion cells (ectodermal derivatives) are affected; that only certain segments (corpus striatum and cortex) and definite cortical systems (third, fourth and sixth layers) are exclusively affected. The selective lesion of the germinal layer, segments and systems (the morphologic triad of Schaffer) must be present in every case of heredodegeneration. The absence even of one factor excludes any given case as belonging to this group. Schaffer discusses every known heredodegenerative disease in detail, ably illustrating his views with excellent histories of cases, drawings and photomicrographs. With especial completeness he takes up the various forms of idiocies, to the knowledge of the histopathology of which he made a number of important contributions. Though his views as to the fundamental morphology of heredodegenerations are by no means universally accepted, the book, written by a master neuropathologist, is of great value, for it embodies the results of a vast experience and of the remarkable advances made in this difficult branch of medical science.

DIE THERAPIE DER HERZKRANKHEITEN. Von Dr. Carl Haeberlin, Leiter des städtischen Krankenhauses in Bad Nauheim. Paper. Price, 1.50 marks. Pp. 34. Leipsic: Repertorienverlag, 1925.

This is a small, thoroughly practical book on the therapy of heart disease by a physician practicing in Nauheim. There is a special chapter on carbonated baths.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

PHYSICAL THERAPY IN DISEASES OF THE EYE, EAR, NOSE AND THROAT: With Chapters on Some Borderline Affections. By Abraham R. Hollender, M.D., Attending Otolaryngologist, American Hospital of Chicago, and Maurice H. Cottle, M.D., Attending Otolaryngologist, Illinois Masonic Hospital at Chicago. Cloth. Price, $5. Pp. 307, with 81 illustrations. New York: Macmillan Company, 1926.

Report of experiments, many empiric, in a field in which there is as yet more empiricism than scientific data.

HANDBOOK OF MEDICAL ELECTRICITY AND RADIOLOGY. By James R. Riddell, F.R.F.P.S., Lecturer on Electrical Diagnosis and Therapeutics, University of Glasgow. Cloth. Price, $2.75. Pp. 239, with 110 illustrations. New York: William Wood & Company, 1926.

Inadequate outline devoted primarily to roentgen-ray examinations and the therapeutics of radium.

PRACTICAL ULTRA-VIOLET LIGHT THERAPY. A Handbook for the Use of Medical Practitioners. By T. Clyde McKenzie, M.B., Ch.B., and A. A. King. Cloth. Price, $2.50. Pp. 108, with 19 illustrations. New York: William Wood & Company, 1926.

Another outline by another therapist who believes ultra-violet light can help everything.

PRACTICAL MATERIA MEDICA AND PRESCRIPTION WRITING. By Oscar W. Bethea, M.D., Ph.G., F.C.S., Professor of Clinical Therapeutics, Tulane School of Medicine. Fourth edition. Cloth. Price, $4.50 net. Pp. 498. Philadelphia: F. A. Davis Company, 1926.

New edition based on the pharmacopeia but omitting other desirable revisions.

A MANUAL OF PROCTOLOGY. By T. Chittenden Hill, Ph.B., M.D., F.A.C.S., Instructor in Proctology, Harvard Graduate School of Medicine. Second edition. Cloth. Price, $3.50. Pp. 294, with 101 illustrations. Philadelphia: Lea & Febiger, 1926.

An outline of proctology with especial reference to operative methods.

ORTHOPEDIC SURGERY. By W. A. Cochrane, M.B., Ch.B., F.R.C.S.E., Assistant Surgeon, the Royal Infirmary, Edinburgh. Cloth. Price, $6.50. Pp. 528, with 504 illustrations. New York: William Wood & Company, 1926.

A British presentation by a disciple of Goldthwait and Osgood.

HAPPINESS IN MARRIAGE. By Margaret Sanger. Cloth. Price, $2. Pp. 231. New York: Brentano's, 1926.

A passionate account of the physical aspects of married life with an apparently successful technic for securing satisfactory results.

THE TREATMENT OF FRACTURES WITH NOTES UPON A FEW COMMON DISLOCATIONS. By Charles Locke Scudder, A.B., Ph.B., M.D., F.A.C.S., Consulting Surgeon to the Massachusetts General Hospital. Tenth edition. Cloth. Price, $12 net. Pp. 1240, with 2027 illustrations. Philadelphia: W. B. Saunders Company, 1926.

New edition of established textbook.

AN ATLAS OF MIDWIFERY. By Comyns Berkeley, M.A., M.C., M.D., Senior Obstetric and Gynæcological Surgeon, the Middlesex Hospital, and Georges M. Dupuy, M.D. Cloth. Price, $3. Pp. 160, with 256 illustrations. New York: William Wood & Company, 1926.

Obstetrics shown diagrammatically but with dull diagrams.

THE DUODENAL TUBE AND ITS POSSIBILITIES. By Max Einhorn, M.D., Professor of Medicine at the New York Postgraduate Medical School. Second edition. Cloth. Price, $3 net. Pp. 206, with 126 illustrations. Philadelphia: F. A. Davis Company, 1926.

New edition with more case reports and other material.

RANDOM TALKS BY AN M.D. By Dr. Maurice W. Pearson. Cloth. Price, $2 net. Pp. 120. Boston: Richard G. Badger, 1926.

Casual essays on sex, religion, understanding and other interests of the so-called human race.

DIE LICHTBEHANDLUNG DES HAARAUSFALLES. Von Dr. Franz Nagelschmidt. Fourth edition. Paper. Price, 3.90 marks. Pp. 82, with 89 illustrations. Berlin: Julius Springer, 1926.

Medicolegal

Surgeon Not Proved Negligent in Leaving Sponge

(Funk v. Bonham (Ind.), 151 N. E. R. 22)

The Appellate Court of Indiana, in reversing a judgment for $9,000 damages which was rendered in favor of plaintiff Bonham, says that the sole charge was that the defendant, in the performance of a deep abdominal operation on the plaintiff, had negligently left a sponge in the abdominal cavity. It has been expressly held, in a case similar to the one under consideration, that the "operation" included not only the opening of the body cavity and the removing of diseased organs therefrom, but also the use and the removal of the sponges used in such operation, before the closing of the incision. *Akridge* v. *Noble*, 114 Ga. 949, 41 S. E. 78. And the authorities all agree that the duty which the surgeon owes to the plaintiff in performing the operation is that of exercising reasonable care. Counsel sought to eliminate the matter of the removal of the sponges from the work of performing the operation, and would consider it as a separate matter, which, under the authorities, they could not do.

Whether or not the treatment given by a physician or surgeon in a given case is reasonably prudent or is reasonably skilful—in fact, the question as to whether or not the physician or surgeon has, in a given case, exercised reasonable care—is usually a question for experts, a question of science. Where the question is one requiring for its correct solution scientific or expert knowledge, and such was the question in the instant case, it can be answered only by those possessing the requisite skill and knowledge to give their answers probative force or value, and persons not so qualified are not competent witnesses as to such questions. Medical and surgical science must advance gradually; the correct application of its principles is very largely empiric; it has its errors and its failings, as have all things into which the "human equation" enters, and it would not do to hold, as a rule of law, that every physician who administers a dose of medicine, and every surgeon who performs an operation, does so at his peril if the result happens to be not good; that a jury of laymen might mulct him in damages if they, as laymen, should think that he had been negligent in the matter complained of, although his conduct has been in harmony with well recognized, standard methods used by physicians generally in such cases.

The defendant requested an instruction telling the jury that, under the issues in the case, no question was raised as to his learning and skill as a surgeon, and that in their consideration of the case they should presume that he had the learning and skill requisite under the law to entitle him to operate on the plaintiff. This instruction should have been given, so that the jury might be fully and correctly informed as to the exact issue which it was called on to try.

The evidence in this case disclosed, without conflict, that, in performing the operation in question, the defendant was assisted by certain graduate nurses, not servants of his, but regular employees of the hospital where the operation was performed; that the sponges used in surgical operations were prepared beforehand, sterilized, packed six in a box, and put away until needed; that they were prepared and kept at the hospital; that when an operation was to be performed the sponges were brought in, the packages opened, the sponges again counted and placed on the "sterile table" at the side of the operating table; that during the operation, as the surgeon called for them, the sterile nurse took them, one at a time, moistened them, and handed them to the surgeon; that when the sponges were removed by the surgeon they were placed in a basin at the foot of the operating table; that before the incision was closed the surgeon asked the assistant nurses about the sponges; and that the unsterile nurse then counted the sponges in the basin and reported to the sterile nurse the number thereof, who then checked the number so announced against the number of sponges used, and announced

to the surgeon as to whether or not the count was correct—that is, as to whether or not all sponges used had been accounted for. This was the method used in performing the operation on the plaintiff, and the record showed, by uncontradicted testimony, that the defendant, before he closed the incision which he had made on the body of the plaintiff, asked the nurses if the sponges were all out, and the nurses informed him that they were.

Tested by the authorities, the court must hold that the verdict of the jury in this case was not sustained by any competent evidence, and that the defendant's motion for a new trial should have been sustained. It has been expressly held that a surgeon who performs an operation at a hospital, not owned and controlled by himself, and who is assisted in such operation by nurses, not his employees, but employees of such hospital, is not responsible for the mistake or negligence of such nurses in failing to count correctly the sponges used in such operation, whereby a sponge is left and sewed in the body cavity of the patient. *Baker* v. *Wentworth*, 155 Mass. 338, 25 N. E. 589.

Privilege Not Waived

(Travelers' Ins. Co. v. Fletcher American Nat. Bank et al. (Ind.), 150 N. E. R. 825)

The Appellate Court of Indiana, division 2, says that, in this action brought by the national bank on a policy of life insurance, the insurance company contended that the trial court erred in refusing to permit it to read in evidence the deposition of a physician, and in suppressing it. That much of the deposition was privileged under section 520 of Burns' Revised Statutes of 1914 could hardly be questioned, for the physician was at the time about which he testified acting as the physician of the insured, giving him medical treatment. But a letter of the physician's, stating substantially the same facts that were contained in his deposition, among which was that the insured was afflicted with syphilis, was so in the possession of the company that it was admissible in evidence. To meet the statements of that letter, if it should be introduced in evidence, it was necessary for the plaintiff to have the testimony of two physicians, both of whom lived in Kansas City, and the only way to secure this testimony and to have it present in the event that it was needed was by deposition. Under such circumstances, the taking of the depositions of those two physicians was not a waiver of privilege so as to admit the deposition of the physician first mentioned, even if otherwise competent. In other words, the court holds that there was no waiver of privilege by the taking of the depositions of other physicians who were in attendance at the same time with the first-mentioned physician, and that there was no error in excluding such deposition at the time it was offered in evidence, which was before the other depositions had been offered in evidence. Subsequently the deposition of one of the Kansas City physicians was read in evidence by the defendant, and the other by the plaintiff, but there was no further offer to read in evidence the deposition of the first-mentioned physician. At the time that was offered, there had certainly been no waiver of privilege, and the court did not at that time err in its ruling. Any subsequent change in the record could not make the court's correct ruling erroneous. If the defendant desired to save any question as to the exclusion of the deposition, it was incumbent on it to reoffer the same after changed conditions.

Again, the defendant contended that, as the plaintiff called other attending physicians to testify as to the insured's condition of health, one of whom was in consultation with the first-mentioned physician as to the insured's condition, it thereby waived its right to claim the statutory privilege as to the first-mentioned physician. But in Indiana it is held that, where a patient or his representatives avail themselves of the evidence of one attending physician, this does not constitute a waiver as to other attending physicians. The Indiana statute makes attending physicians incompetent, and they cannot be heard to testify as to facts learned while acting in their confidential relation, except by the consent of the patient. If the legislature intended that, by calling one attending physician to testify, others were thereby made competent, it could have made such provision; this it has not done.

Interference by Supreme Court in License Case

(State ex rel. North et al. v. Miller, Judge (Mo.), 280 S. W. R. 47)

The Supreme Court of Missouri says that in this case the state board of health was threatening to hear and determine certain charges lodged before the board against a physician, in which charges the party making them asked that the physician's license to practice medicine in Missouri be revoked. The physician filed a bill in equity to restrain the board from proceeding with the hearing, in which irreparable damage to her business was alleged. After an order to show cause had been served and the board had made return to such order, Judge Miller granted a temporary restraining order. The trial of the case on its merits would have been set for a certain day by Judge Miller, but a preliminary rule in prohibition from this court stopped such action. On full consideration, this court concludes that its preliminary rule should be quashed; this on the ground that Judge Miller had jurisdiction both of the subject matter and the parties. If the bill was without equity, or if the physician had an adequate remedy at law, it was fair to presume that the trial judge would so rule on final trial. The bill might be amended, if the plaintiff so desired, in the course of making up the issues. At least the circuit court having complete jurisdiction should not be interfered with by prohibition. It was for that court to determine on final hearing of the case whether or not the bill stated an equitable cause of action, or whether or not the plaintiff had an adequate remedy at law, and not for this court to determine these questions in prohibition.

Money Award in Favor of Physician Not Authorized

(Bee Hive Mining Co. et al. v. Industrial Commission (Va.), 132 S. E. R. 177)

The Supreme Court of Appeals of Virginia, in considering a petition for a writ of prohibition, says that it was contended that the industrial commission of Virginia has no power to require an employer or its insurance carrier to pay a money award to a physician furnished by them, or either of them, to an injured employee. This the commission undertook to do, and the petition before the court raised the question of the jurisdiction of the commission to pass on fees of physicians, under the circumstances mentioned. Whatever control the commission has over fees of physicians it gets from section 65 of the workmen's compensation act of Virginia, which provides that:

> Fees of attorneys and physicians and charges of hospitals for services under this act shall be subject to the approval of the commission; but no physician shall be entitled to collect fees from an employer or insurance carrier until he has made the reports required by the industrial commission in connection with the case.

The court does not construe this section as conferring on the industrial commission the power to require the employer or its insurance carrier to pay a money award to a physician furnished by them, or either of them, to the injured employee. This section was intended, as the court construes it, to give the industrial commission the power to pass on attorneys' fees and physicians' charges when rendered—in other words, it was the intent of the act not to allow an attorney or a physician to overcharge for his services. There is nothing in this section that could be construed to give authority to the industrial commission to make a money award against an employer and insurance carrier and in favor of a physician, who, at their request, has rendered services to an injured employee. Of course, if, in accordance with the provisions of the workmen's compensation law, the employer or its insurance carrier had ordered the services of a physician, and refused to pay for them, the physician would have a right to maintain an action at law, but the industrial commission has no authority under the law to require the employer or its insurance carrier to pay a physician ordered by them.

The court thinks, therefore, that the commission was without jurisdiction to make the award in question, and that a

writ of prohibition would lie to prevent enforcement of the award, and it says that a writ of prohibition would therefore issue, prohibiting the industrial commission from further proceeding in the matter of the award of a fee to the physician in question, and particularly from issuing a certified copy of the award.

Offering Services to Assist in Producing Miscarriage

(People v. McKeon (Calif.), 243 Pac. R. 898)

The District Court of Appeal of California, second district, division 2, in reversing a judgment of conviction of the defendant, says that he was charged with offering his services to assist in the accomplishment of a miscarriage, but that did not charge every essential of the offense denounced in the concluding clause of section 317 of the penal code of the state, which section reads:

> Every person who wilfully writes, composes or publishes any notice or advertisement of any medicine or means for producing or facilitating a miscarriage or abortion, or for the prevention of conception, or who offers his services by any notice, advertisement or otherwise, to assist in the accomplishment of any such purpose, is guilty of a felony.

The section as a whole seems to be aimed against advertisements; i. e., advertisements of certain means for producing miscarriages, or abortions, or for preventing conception. The first part of the section speaks of "medicine" or "means" for producing or facilitating miscarriages or abortions or preventing conception. Just what is here meant by the word "means" is not clear. It is possible that it may include surgical instruments. This part of the section is directed against the writing, composition or publication of such notices or advertisements as are designed to bring home to the public a knowledge of certain "medicines" or "means"; i. e., a knowledge of such agencies as may be used at any place and by any person—by the woman herself, for instance—to bring about an abortion or a miscarriage or to prevent conception.

The concluding part of the section, that under which it was sought to charge the defendant, deals, not with medicines, drugs, instruments, etc., but with "services"; i. e., an agency which necessarily must be exercised on the body of the woman by another; viz., by the person offering his services. This part of the section makes it a crime for one to offer "his services" to assist in the accomplishment of any miscarriage or abortion. But a mere offer of service is not enough. More than that is required to bring the offerer within the terms of the offense denounced by the statute. He must offer his services by "notice, advertisement or otherwise."

While the court is satisfied that the term "or otherwise," as used in this code section, is equivalent to the term "or other such like means," the court does not find it necessary to decide, and it expressly refrains from deciding, the precise content of the words "or otherwise"; i. e., the precise kind of notice which would satisfy their requirement. Suffice it to say that these words must be held to mean that the offer of services must be made through or by means of notice of some kind other than such as necessarily is involved in the mere act of making the offer. But here the information made no attempt to charge that the offer of the defendant's services was made by means of any notice of any kind whatever, save only such as necessarily was implied in the mere act of offering one's services.

Evidence Not Deemed to Prove Insanity

(People v. Ortiz (Ill.), 150 N. E. R. 708)

The Supreme Court of Illinois says that it was argued in this homicide case that, because the defendant shot a man when he found him in conversation with a certain girl, and because with childlike simplicity the defendant confessed a serious crime (the killing of the girl), which ordinarily would interpose an insurmountable barrier to his acquittal, he was obviously insane. But the fact that one's jealousy is easily aroused does not necessarily show a deluded mind. It does not follow that a man is insane because he lacks self-control. Nor does the making of a confession by a person charged with crime denote insanity. There are sane persons who occasionally exhibit loss of self-control, and even an inclination to confess criminal acts. Every man is presumed to be sane, and responsible for his acts, until the contrary appears. The evidence offered in behalf of the defendant merely showed that he ate excessively and slept soundly while he was imprisoned in the county jail. Such evidence certainly failed to establish any diseased state of his mind, and no other evidence was adduced to overcome the presumption that the defendant was sane and responsible for his acts. The law presumes that every sane person intends the natural and probable consequences of his acts.

Nature a Great Healer

(Cincinnati, N. O. & T. P. Ry. Co. v. Ross (Ky.), 279 S. W. R. 1075)

The Court of Appeals of Kentucky, in reversing a judgment for $10,000 damages recovered by plaintiff Ross because it could not find anywhere in the evidence anything to justify a verdict for that amount, says that evidently the plaintiff was neurasthenic, and his counsel argued that his was a case of traumatic neurasthenia. But the plaintiff, if injured at all, was injured without any visible marks of those injuries appearing on him. Nature, if given time, is a great healer of all afflictions. We see remarkable recoveries every day. We meet our friends and acquaintances sound and well, and recall the fact that just a few months before the most skilled and reputable surgeons and physicians had said they could never recover. It is because such recoveries are of everyday occurrence that courts should require that the evidence of permanent injury should be positive and satisfactory before submitting that question to the jury. Where there is a question whether the injury is permanent or is something from which the plaintiff may recover, the court should submit the matter to the jury in some form giving to the jury an opportunity to determine for itself whether the injuries are permanent or not.

Proposal to Pay Bills Admission of Liability

(McCallister v. Farra et al. (Ore.), 243 Pac. R. 785)

The Supreme Court of Oregon, in affirming a judgment in favor of the plaintiff for damages for personal injuries, says that a witness was asked if on a certain occasion anything was said by Mr. or Mrs. Farra about payment of the hospital and doctor bills, and what it was. Objection to the question was overruled, and the witness answered: "Well, we were talking about the accident, and they seemed to be very sorry that it happened, and told me that they would do the right thing with the people; that they would pay the hospital fees and the doctor bills, and asked me if I didn't think that would be right, and I says: 'Yes, certainly that would be right.'" The testimony objected to did not indicate an offer to compromise. It tended to show an admission of liability on the part of defendant Farra, and was competent.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Nov. 3-5. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.
American College of Physical Therapy, Chicago, Oct. 18-23. Dr. R. W. Fouts, City National Bank Building, Omaha, Secretary.
American College of Surgeons, Montreal, Canada, Oct. 25-29. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.
Association of American Medical Colleges, Cleveland, Ohio, Oct. 25-27. Dr. F. C. Zapffe, 25 East Washington Street, Chicago, Secretary.
Central States Pediatric Society, St. Louis, Oct. 22-23. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.
District of Columbia, Medical Society of, Washington, D. C., Dec. 1. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, D. C., Sec'y.
Inter-State Postgraduate Medical Association of North America, Cleveland, Oct. 18-22. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.
New York and New England Association of Railway Surgeons, New York, Oct. 22-23. Dr. H. H. LeSeur, Batavia, N. Y., Secretary.
Radiological Society of North America, Milwaukee, Nov. 29-Dec. 4. Dr. Robert J. May, 5005 Euclid Avenue, Cleveland, Secretary.
Southern Medical Association, Atlanta Ga., Nov. 15-18. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Southern Minnesota Medical Association, Mankato, October 18. Dr. H. T. McGuigan, Redwing, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

1: 671-790 (Aug.) 1926

*Austin Flint Phenomenon. G. R. Herrmann, New Orleans.—p. 671.
*Use of Digitalis in Treatment of Auricular Premature Contractions. H. J. Stewart, New York.—p. 687.
*Surgery of Mitral Valve. D. S. Allen, St. Louis and P. S. Barker, Ann Arbor, Mich.—p. 693.
*Mycotic Aneurysm Involving Intraventricular Septum. C. P. Wilson, Boston.—p. 703.
*Vocational Training for Cardiac Child. L. T. Gager, New York.—p. 707.
*Phonocardiography of Human Fetus. J. J. Sampson, R. L. McCalla and W. J. Kerr, San Francisco.—p. 717.
*Cor Biatriatum Triloculare. C. A. McIntosh, Ann Arbor, Mich.—p. 735.
*Effect of Superior Cervical Sympathectomy on Myocardium of Rabbits. W. Dock and H. Hartman, San Francisco.—p. 745.
*Incidence of Previous Tonsillectomy in Subacute Bacterial Endocarditis. K. B. Turner, Boston.—p. 747.
Pathology of Rheumatic Fever. B. Sacks, New York.—p. 750.

Austin Flint Phenomenon in Syphilitic Aortitis.—Two quite similar human cases of syphilitic aortitis which during life presented a conspicuous Austin Flint phenomenon, and which at necropsy showed incompetence of the posterior aortic cusps primarily, are reported by Herrmann. In the first case, the patient was suffering severely with cardiac pain of the most excruciating paroxysmal type. The peripheral vascular phenomena of aortic regurgitation were conspicuous. The heart was greatly enlarged. A prominent diastolic thrill was felt over the apex and a diastolic shock was present at the base to the left. A long rumbling diastolic murmur was heard over the apex. The second patient had suffered an acute attack of severe congestive heart failure. The peripheral vascular signs were conspicuous and the heart was greatly enlarged. The signs at the apex were much more prominent than those at the base. A diastolic thrill was present over the apex, and a shock was felt over the base of the left side. A long rumbling diastolic murmur was heard at the apex along with a slight systolic one, while the aortic diastolic and systolic murmurs could be heard well only with the patient holding his breath after expiration. The evidence presented strongly suggests that the position of the lesion or at least the sector through which regurgitation takes place plays an important rôle in the production of the Austin Flint phenomenon. The evidence further supports the theory of a functional mitral obstruction to explain the mechanism of the phenomenon.

Digitalis in Treatment of Auricular Premature Contractions.—Stewart has found that digitalis is effective in bringing about the disappearance of auricular premature contractions which occur spontaneously. This effect takes place when digitalis is used in the full therapeutic amount.

Surgery of Mitral Valve.—Allen and Barker report on a study of the immediate effects on the cardiac rhythm of the various operative procedures for cutting the mitral valve. The surgical approach to the mitral valve through the wall of the left ventricle may give rise to ventricular fibrillation. The surgical approach to the mitral valve through the left auricular appendage causes no serious disturbance of rhythm of the heart.

Mycotic Aneurysm of Intraventricular Septum.—The three cases reported by Wilson presented mycotic aneurysms of the intraventricular septum complicating subacute bacterial endocarditis. One of the cases was in no way atypical of fulminating endocarditis except that a positive blood culture was never obtained during life. The other two cases showed terminal events of clinical interest as both patients died of heart block. In one patient the condition was recognized two weeks before death while in the other it was observed only as the terminal event.

Vocational Training for Cardiac Child.—Gager describes the work which is being done in the cardiac trade classes of the New York City Board of Education, and discusses some of its medical aspects.

Phonocardiography of Human Fetus.—Among thirty-three subjects on whom fetal heart sound observations were made by Sampson et al., twelve presented no murmurs, and seventeen showed only an early systolic murmur. Seven showed other systolic and diastolic murmurs which apparently could not be used as indications of congenital heart lesions as seen after birth, and may represent currents through the patent foramen ovale and ductus arteriosus. One case illustrated certain criteria of a congenital heart lesion before birth. The unique feature of this case was a high pitched murmur throughout the whole of systole. A surprising fact disclosed in this investigation was that in the normal fetus with a patent foramen ovale and ductus arteriosus, murmurs were not consistently found.

Multiple Cardiac Anomalies.—A case of multiple cardiac anomalies—cor biatriatum triloculare—is described by McIntosh. There were present: mitral atresia; absent interventricular septum; hypertrophied pulmonary artery becoming the descending aorta through a patent ductus arteriosus; extreme hypoplasia of the aorta; solitary (left) coronary artery; bicuspid aortic valve; accessory pulmonary vein leading from the upper portion of the right lung to the superior vena cava, and an anomalous communication between the left auricle and the superior vena cava.

Effect of Superior Cervical Sympathectomy on Heart.—Dock and Hartman assert that, in the rabbit, ablation of the left superior cervical ganglion is not followed by demonstrable histologic change in the heart.

Tonsillectomy and Subacute Bacterial Endocarditis.—Turner's observations indicate that there seems to be a possibility that tonsillectomy performed in cases of rheumatic fever or rheumatic heart disease may tend to prevent subsequent subacute bacterial endocarditis.

Archives of Neurology and Psychiatry, Chicago

16: 131-262 (Aug.) 1926

*Acute Swelling of Oligodendroglia. W. Penfield and W. Cone, New York.—p. 131.
Forebrain and Midbrain of Alligator: Experimental Transections of Brain Stem. C. Bagley, Jr., and O. R. Langworthy, Baltimore.—p. 154.
*Meningo-Encephalitis Due to Torula. C. A. McKendree and L. H. Cornwall, New York.—p. 167.
Treatment of General Paralysis by Inoculation with Malaria. H. A. Bunker, Jr., and G. H. Kirby, New York.—p. 182.
Id.: Results of Forty-Two Cases. H. D. McIntyre and A. P. McIntyre, Cincinnati.—p. 205.
Career of Ramón Cajal. W. Penfield, New York.—p. 213.

Acute Swelling of Oligodendroglia.—Cases are reported by Penfield and Cone and results of animal experiments are given which show that the oligodendroglia undergo a specific alteration which is often the only evidence of a pathologic process in the central nervous system. It is predicted that in the brains from cases of toxic delirium resulting from various causes, acute swelling of oligodendroglia will be found consistently. This change in oligodendroglia appears in the central nervous system as a response to pathologic conditions which influence the brain in a toxic manner. This is seen both clinically and experimentally. It is present in some epileptic conditions and occurs as an agonal change in cases in which death is preceded by coma or stupor of several hours' duration. It will invariably appear if fixation is delayed too long after death. If the regressive change in oligodendroglia is sufficiently severe it is always accompanied by clasmatodendrosis of astrocytes (ameboid glia) but the conditions which thus influence neuroglia do not affect microglia. This may be taken, perhaps, as suggestive biologic evidence in favor of the contention that the latter cells have an origin different from that of neuroglia. Although similar in certain ways to clasmatodendrosis, acute swelling of oligodendroglia appears before any change in the astrocytes

and often is the only evidence of a pathologic change discoverable in the brain.

Meningo-Encephalitis Due to Torula.—The clinical and pathologic features of the case reported by McKendree and Cornwall are said to warrant its designation as subacute, progressive meningo-encephalitis, due to torula. All clinical signs and symptoms are readily explained by the pathologic findings. The authors emphasize the urgent need of repeated careful cytologic and cultural studies in spinal fluid specimens, and of the inclusion of torula infection as one of the subacute inflammatory diseases of the central nervous system.

Archives of Pathology and Laboratory Medicine, Chicago

2: 149-300 (Aug.) 1926

*Experimental Amyloidosis. R. H. Jaffé, Chicago.—p. 149.
*Primary Carcinoma of Fallopian Tubes. H. F. Wechsler, New York.—p. 161.
*Mode of Infection in Coccidioidal Granuloma. F. E. Ahlfeldt, Philadelphia.—p. 206.
*Botelho Serum Test for Cancer. J. M. Baty and J. A. Greene, Boston.—p. 217.
Parasitic Infections and Human Disease in China. E. C. Faust, Peking.—p. 223.

Experimental Amyloidosis.—That lipoids may influence the formation of amyloid is shown by the results of Jaffé's experiments. Feeding (*a*) cholesterol and fat, or (*b*) dried beef heart powder increases the resistance of mice against the toxic action of long continued injections of foreign proteins. Thus, the formation of amyloid can be delayed for a considerable length of time. The fat diet, however, is effective only when started together with the injections. If there is an interval between them, the beginning of the injections preceding the diet by more than two weeks, no protection of the mice can be noted.

Primary Carcinoma of Fallopian Tubes.—Carcinoma of the fallopian tubes is only a comparative rarity. Wechsler reviews 192 cases gathered from the literature and reports four personal cases. This condition occurred between the ages of 40 and 55 in 66 per cent of the cases. Sterility was present in 32 per cent. The most common symptoms were pains in the lower part of the abdomen, a watery, often serosanguineous discharge and irregularities in the menses. Macroscopically, the tumor was either nodular or diffuse, and histologically either papillary or papillary-alveolar in type. Metastases, especially lymphatic, were common. The association with tuberculosis was rare. Evidence of inflammation either in the affected tube or that of the opposite side was present in a considerable proportion of the cases. The operative results were extremely poor, because of the insidious onset of the disease, the difficulty in diagnosis and the few radical extirpations performed.

Mode of Infection in Coccidioidal Granuloma.—Ahlfeldt states that it is probable that coccidioidal granuloma may be transmitted through the skin, as well as through the respiratory and gastro-intestinal tracts.

Botelho Serum Test for Cancer.—Baty and Greene are convinced that Botelho's reaction is of no value in the diagnosis of cancer. It depends, like many similar tests, on some change in the physical state of the blood colloids, and may give positive results on serums from patients suffering from any disease condition in which there is such a change.

Arkansas Medical Society Journal, Little Rock

23: 17-46 (July) 1926

Proceedings of Fifty-First Annual Session of Arkansas Medical Society—p. 24.

23: 47-62 (Aug.) 1926

Play and Life. E. T. Lies.—p. 47.
Constipation of Babies. J. E. Jones, Little Rock.—p. 49.

Boston Medical and Surgical Journal

195: 343-388 (Aug. 19) 1926

*Adenomyomata or Tumors Composed of Endometrial-Like Tissue. J. V. Meigs, Boston.—p. 343.
Bronchial Asthma: Rôle Played by House Dust and by Bacteria. F. M. Rackemann and D. S. King, Boston.—p. 347.
Angina Pectoris as Complication in Myxedema and Exophthalmic Goiter. C. C. Sturgis, Boston.—p. 351.
Rural Medicine in Worcester County. F. H. Washburn, Holden, Mass.—p. 354.

Study of Adenomyoma.—Forty-two cases are analyzed by Meigs. Five of the patients died, a mortality of 11.9 per cent. These tumors are made up of endometrium-like tissue and occur in numerous regions. The pelvic organs and their adjacent structures are most commonly affected. They may become serious by invading and enlarging, causing intestinal obstruction and later death. The "chocolate cyst" of Sampson is the most serious type. It may be responsible for the adenomyoma found in various organs. Surgical removal of the adenomyoma itself is all that is necessary in some cases. In many cases with extensive pelvic pathologic changes, removal of the tumor and especially of the ovaries is essential. The diagnosis is difficult, but must always be thought of in diagnosing conditions of the female pelvis. The lesions are often multiple. Menorrhagia was the outstanding symptom, being present in thirty cases.

195: 389-454 (Aug. 26) 1926

Diathermy in Medicine. W. D. McFee, Haverhill, Mass.—p. 389.
Biophysics of Ultraviolet Light. W. T. Bovie, Boston.—p. 391.
*Clinical Application of Ultraviolet Light. E. T. Wyman, Boston.—p. 396.
*Present Status of Radiation Therapy in Carcinoma. G. W. Holmes, Boston.—p. 399.
Influenza in Massachusetts. H. L. Lombard, Bridgton, Me., and C. R. Doering, Boston.—p. 405.
*Special Diet for Patients with Pernicious Anemia. W. P. Murphy and G. R. Minot, Boston.—p. 410.
Key-Man in Cancer Control. G. A. Soper, New York.—p. 411.

Clinical Application of Ultraviolet Rays.—In Wyman's opinion, the quartz lamp can be used as a substitute for sunlight and has the advantage of being available regardless of sunshine and weather. It can be given indoors so as not to subject the infant or child to the cold, and the doses can be more accurately gaged. There is, however, a very real danger of becoming too enthusiastic about ultraviolet therapy rays lest this form of treatment be looked on by the physician and his patient as a quick and sure cure for all ailments. It can be said, however, that ultraviolet ray therapy has a specific action in treating rickets and spasmophilia, and is a valuable therapeutic agent in the treatment of tuberculosis of the mesenteric and bronchial glands and tuberculous peritonitis.

Treatment of Carcinoma.—Holmes agrees with others that the effective treatment of carcinoma requires the cooperation of a group of physicians trained in the various specialties, and particularly interested in this disease. Each case should be studied carefully, and a definite plan of treatment decided on before starting any single form of therapy. Most curable cases are better treated surgically, but the surgeon should not attempt a radical cure when complete removal of the tumor is impossible. These cases are better treated by radiation alone. Preoperative radiation, properly used, probably increases the chance of surgical cure. Postoperative radiation has failed to prevent recurrence, and when prolonged has caused permanent harm to the skin. In the treatment of recurrent and inoperable cases, relief of distressing symptoms should be the main object of the treatment. It is usually inadvisable to use heavy or prolonged dosage in an attempt to cure.

Diet for Pernicious Anemia.—This diet composed of foods rich in complete proteins—particularly liver—and containing an abundance of muscle meat, and fruits and green vegetables, but low in fat was discussed by Murphy and Minot in THE JOURNAL, August 14, p. 470.

Florida Medical Association Journal, Jacksonville

13: 28-57 (Aug.) 1926

Plea for More Judgment in Correcting Uterine Displacements. J. S. Turberville, Century.—p. 28.
State Board of Health, Its Anatomy and Physiology. B. L. Arms, Jacksonville.—p. 31.
Sanitary Deeds in Florida During Past Half Century. J. Y. Porter, Key West.—p. 33.
Treatment of Atrophic Rhinitis with Ozena. W. T. Hotchkiss, Miami Beach.—p. 47.
Swallowed Foreign Body (Oyster Shell) Causing Marked Emphysema. J. A. Beals, Jacksonville.—p. 50.

Georgia Medical Association Journal, Atlanta

15: 300-338 (Aug.) 1926

Sanitation Problems of Small Cities. J. W. Chambliss, Americus.—p. 300.
Studies in School Children from Neuropsychiatric Viewpoint. G. L. Echols, Milledgeville.—p. 303.
Lymphoid Tissue in Nasopharynx. J. T. King, Thomasville.—p. 306.

Indiana State Medical Association Journal, Ft. Wayne

19: 299-326 (Aug. 15) 1926

Colitis. J. W. Larimore, St. Louis.—p. 299.
Malignant Metastasis Within Thorax. C. S. Oakman, Muncie.—p. 303.
Treatment of Syphilis. F. W. Cregor and F. M. Gastineau, Indianapolis. —p. 305.
Operative Treatment of Paralytic Feet. E. B. Mumford, Indianapolis. —p. 309.
Comparative Study of Oriental Medicine. F. E. Wiedemann, Terre Haute.—p. 311.
Chorea Gravidarum: Is Termination of Pregnancy Advisable in Severe Cases? L. I. Kaffesieder, Los Angeles.—p. 314.

Iowa State Medical Society Journal, Des Moines

16: 357-394 (Aug.) 1926

Romance of Surgery. J. B. Deaver, Philadelphia.—p. 357.
Life Insurance Examiner. W. E. Long, Mason City.—p. 361.
Constitution of Patient. H. W. Traub, Chicago.—p. 363.
Differential Diagnosis of Neoplasms of Pelvic Bowel. C. J. Drueck, Chicago.—p. 368.
Submucous Resection of Nasal Septum. F. L. Wahrer, Marshalltown. —p. 371.
Chorea. F. R. Sparks, Waverly.—p. 372.
Periodic Health Examination. H. E. Kleinberg, Redfield.—p. 379.

Johns Hopkins Hospital Bulletin, Baltimore

30: 69-120 (Aug.) 1926

*Acute Nephritis in Children: Treatment of Uremia. K. D. Blackfan, Boston.—p. 69.
*Lactic Acid in Toxemias of Pregnancy. H. J. Stander and A. H. Radelet, Baltimore.—p. 91.
Influence of Changes in Hydrogen Ion Concentration on Refractory Period of Perfused Mammalian Heart. E. P. Carter and F. R. Dieuaide, Baltimore.—p. 99.
*Foreign Body Cysts Simulating Parasitic Cysts of Peritoneal Cavity. C. G. Guthrie, Lawrenceville, N. J.—p. 113.

Acute Nephritis in Children.—Blackfan states that increased arterial tension and the development of the group of cerebral symptoms described as uremic are characteristic events in acute glomerular nephritis, whereas generalized edema without rise in blood pressure is the outstanding feature in acute tubular nephritis. In acute glomerular nephritis, red blood cells are conspicuous in the urine; the plasma protein is normal and the nonprotein nitrogen tends to increase in the blood. In acute tubular nephritis large amounts of albumin and lipoid substances are found in the urine; the plasma protein is low and the nonprotein nitrogen in the blood is normal. Eleven cases of uremia in children with acute glomerular nephritis are analyzed. These patients were suffering from acute nephritis following tonsillitis or acute respiratory infections. In addition to the cerebral symptoms (vomiting, headache, visual disturbances, coma or delirium and convulsions), there was hypertension, hematuria and visable though not necessarily marked edema. The patients were treated during the uremiä, or the "cerebral symptoms" of this form of nephritis, with intravenous injections of a 1 per cent solution of magnesium sulphate and by the administration of large amounts of magnesium sulphate by mouth and by rectum.

Lactic Acid in Toxemias of Pregnancy.—In pregnancy complicated with low reserve kidney, Stander and Radelet found the lactic acid in the blood increased. This accumulation of lactic acid disappears as the patient improves. In pregnancy complicated with nephritis, there is a similar accumulation of lactic acid in the blood, which disappears with the improvement of the patient. The factors which may possibly play a rôle in the accumulation of lactic acid in these two types of pregnancy toxemia are: (*a*) decreased elimination of lactic acid; (*b*) decreased oxidation and interference with the resynthesis of lactic acid into glycogen; (*c*) a possible disturbance of the hydrogen ion concentration of the blood.

Foreign Body Cysts of Peritoneal Cavity.—Attacks of pain in the abdomen, persistent nausea and vomiting and severe prostration were the outstanding symptoms manifested in Guthrie's case. From the practical, surgical standpoint the patient had abdominal adhesions causing symptoms that might be relieved if the adhesions were released. The history suggested the possibility of cysticercus disease with abdominal adhesions. A laparotomy was performed. Numerous, dense adhesions were present about the pylorus, the gallbladder, the edge of the liver and extending down the right side almost to the brim of the pelvis, rendering exposure very difficult. When a view of the peritoneal cavity was obtained, numerous small round or oval cystic bodies were seen everywhere over the surface of the intestine, in the mesentery, the omentum, the adhesions, and attached to the gallbladder. These cysts varied from 5 to 15 mm. in diameter. They were composed of a tough membrane or envelope containing from one to eight or nine dark, hard bodies, quite resistant to crushing. They were later identified as raspberry and tomato seeds. The patient evidently had had a gastric or duodenal ulcer which had perforated and the gastric contents had entered the peritoneal cavity. The foreign bodies so introduced were surrounded by fibrin, eventually covered by peritoneum and rendered innocuous. The adhesive peritonitis resulting from the perforation was responsible for the symptoms that followed. From the patient the information was later elicited that the last meal he had eaten prior to the perforation had consisted largely of cooked canned tomatoes and bread spread with raspberry jam.

Journal of Bacteriology, Baltimore

12: 87-165 (Aug.) 1926

Use of Silica Gel Plate for Demonstrating Occurrence and Abundance of Cellulose-Decomposing Bacteria. S. A. Waksman and C. Carey. —p. 87.
Influence of Hydrogen Ion Concentration on Viscosity of Bacterial Suspensions. I. S. Falk and R. W. Harrison, Chicago.—p. 97.
New Apparatus for Intermittent Observations of Physiologic Changes in Cultures of Micro-Organisms. H. Tamiya, Tokyo.—p. 125.
Occurrence of Bacteria in Oil Well Brine Samples. S. L. Neave and A. M. Buswell, Urbana, Ill.—p. 133.
*Spirochetes in Baltimore Market Oysters. V. T. Dimitroff.—p. 135.

Spirochetes in Oysters.—Spirochetes were found by Dimitroff in the digestive tract of 91 per cent of the oysters sold in the markets of Baltimore. These spirochetes are parasites in the intestine of the oyster, and they survive as long as any liquid remains in the digestive tract of the oyster.

Journal of Clinical Investigation, Baltimore

2: 457-629 (Aug. 20) 1926

*Utilization of Carbohydrates in Chronic Pentosuria. I. M. Rabinowitch, Montreal.—p. 457.
*New Type of Oxygen Chamber. A. L. Barach, New York.—p. 463.
*Blood Volume: I. Comparison of Plasma Volume Changes in Myxedema and Cardiac Edema. W. O. Thompson, Boston.—p. 477.
*Dihydroxyacetone Studies: I. Respiratory and Carbohydrate Metabolism in Normal Men. E. H. Mason, Montreal.—p. 521.
*Id.: II. Respiratory and Carbohydrate Metabolism in Diabetes Mellitus. E. H. Mason, Montreal.—p. 533.
*Effect of Orally Administered Hydrochloric Acid on Gastric Contents in Normal Person and in Achlorhydria. R. A. Kern, E. Rose and J. H. Austin, Philadelphia.—p. 545.
Blood Sugar Time Curves. I. M. Rabinowitch, Montreal.—p. 579.
Guanidine Excretion in Relation to Hypertension. C. P. Howard and I. M. Rabinowitch, Montreal.—p. 587.

Metabolism in Chronic Pentosuria.—The carbohydrate and respiratory metabolism in a case of chronic pentosuria was studied by Rabinowitch. The subject, a man, aged 40, applied for a life insurance policy, and was rejected because sugar was found in the urine. Otherwise he was perfectly well and there were no signs suggesting diabetes mellitus. The author's studies of the metabolism of this man, who had sugar in the urine for twenty-two years, give confirmation to the general opinion held that in chronic pentosuria (unlike diabetes mellitus) the utilization of carbohydrates is unimpaired. There appears, therefore, to be no reason either for subjecting these persons to restricted diets or for classifying them as substandard insurance risks.

New Type of Oxygen Chamber.—A new type of oxygen chamber is described by Barach in which there is adequate removal of carbon dioxide, moisture and heat without the use of motors, fans, electrical appliances or artificial refrigerating

systems. The chamber is transportable. It is constructed of aluminum and glass panels in such a way as to be easily demounted and assembled without destroying its leak-tight property. The operation of the chamber is simple and economical. By turning on the water and the oxygen the running of the chamber is initiated and maintained. The expense of up-keep is from $6 to $8 a day.

Plasma Volume in Myxedema and in Cardiac Asthma.—In nine patients with myxedema, the total plasma volume increased on the average 22.9 per cent, the plasma per kilogram 28.5 per cent, and the plasma per square meter 25.2 per cent when given thyroid extract. From observed and calculated increases in total blood volume, it is estimated by Thompson that the administration of thyroid extract in myxedema not infrequently produces total blood volume increases of 25 per cent. The plasma decrease on omission of thyroid extract and the increase on administering it occur much more rapidly than the same changes in the volume of cells. Plasma reduction is usually well marked within ten days after the drug has been omitted. A parallelism exists in myxedema between basal metabolism and plasma volume. Once the basal metabolism has been restored to normal, further increases in the dose of thyroid extract, up to four times the maintenance dose, produce proportionately much smaller increases in plasma volume and basal metabolism than the maintenance dose. The plasma volume changes in myxedema are contrasted with those in cardiac edema in which plasma volume increases with increasing edema. Other differences in the two are noted.

Effect of Dihydroxyacetone on Metabolism of Normal Persons.—Mason undertook to determine the effect of dihydroxyacetone on the respiratory metabolism of normal persons. His results indicate that at least the greater part of the dihydroxyacetone escapes conversion into glucose in the alkaline duodenum. In normal men dihydroxyacetone when given in 25 or 50 Gm. doses causes a more rapid and a greater carbohydrate combustion than does the same dose of glucose. The total metabolism is usually elevated more rapidly and to a higher level of heat production after dihydroxyacetone than after a like dose of glucose. The blood sugar presents less increment increase after dihydroxyacetone than after a like dose of glucose.

Effect of Dihydroxyacetone on Metabolism in Diabetes Mellitus.—Similar studies were made by Mason in seven cases of diabetes mellitus. The results should indicate that the respiratory and carbohydrate metabolism of dihydroxyacetone is fundamentally different from that of glucose. The average maximum increment increase of the nonprotein respiratory quotient after glucose was 0.048, while after dihydroxyacetone it was 0.130. The average increase of total metabolism after glucose was 11.2 per cent, while after dihydroxyacetone it was 19.6 per cent. The blood sugar showed a smaller increment increase after dihydroxyacetone than after glucose.

Treatment of Achlorhydria.—In the treatment of achlorhydria, Kern et al. have found doses of from 4 to 8 cc. of dilute hydrochloric acid practicable, adequate and preferable to the usual dose of 1 cc. The administration of hydrochloric acid, even though long continued, does not stimulate the secretion of pepsin or affect the spontaneous appearance of free hydrochloric acid in the stomachs of patients with achlorhydria. In two cases of primary pernicious anemia, remissions of nine and twelve months have coexisted with the continued administration of dilute hydrochloric acid in doses of 4 cc.

Journal of Experimental Medicine, Baltimore

44: 147-284 (Aug.) 1926

Effect of Mechanical Tension on Polarity of Growing Fibroblasts. C. H. Bunting and C. C. Eades, Madison, Wis.—p. 147.
Physiologic Variations in Resistance to Bile Flow to Intestine. R. Elman and P. D. McMaster, New York.—p. 151.
Expulsion of Bile by Gallbladder: Reciprocal Relationship with Sphincter Activity. P. D. McMaster and R. Elman, New York.—p. 173.
Oxidation and Reduction of Immunologic Substances: I. Pneumococcus Hemotoxin. J. M. Neill, Boston.—p. 199.
Id.: II. Hemotoxin of Welch Bacillus. J. M. Neill, Boston.—p. 215.
Id.: III. Tetanolysin. J. M. Neill, Boston.—p. 227.
Id.: IV. Streptolysin. J. M. Neill and T. B. Mallory, Boston.—p. 241.
Fundamental Properties of Fibroblast and Macrophage. I. Fibroblast. A. Carrel and A. H. Ebeling, New York.—p. 261.

Journal of Nervous and Mental Disease, New York

64: 113-208 (Aug.) 1926

Relative Weight of Brain Cortex in Human Races and in Some Animals, and Asymmetry of Hemispheres. C. U. A. Kappers, Amsterdam.—p. 113.
Constitutional Factors in "Functional" Psychoses: I. Manic-Depressive Insanity. H. Lundholm, Waverley, Mass.—p. 125.
*Results with Tryparsamide Treatment of Neurosyphilis. C. A. Neymann and D. E. Singleton, Maywood, Ill.—p. 144.
Part of Conduct Disorders in Concept of Constitutional Psychopathic Inferiority. J. H. Huddleson, New York.—p. 151.
Postencephalitic Respiratory Disorders. S. E. Jelliffe, New York.—p. 157.

Tryparsamide in Neurosyphilis.—Fifty cases of syphilis of the central nervous system have been treated with tryparsamide by Neymann and Singleton. About 50 per cent improved or recovered. Parenchymatous syphilis of the central nervous system responded to tryparsamide therapy more favorably than the mesoblastic type.

Laryngoscope, St. Louis

36: 545-622 (Aug.) 1926

Progressive Deafness. D. W. Drury, Boston.—p. 545.
Id. A. W. Rowe, Boston.—p. 551.
Disturbance of Hearing Due to Traumatism. J. C. Scal, New York.—p. 558.
Use of Audiometer in Testing Hearing. W. Nemzek and H. Hays, New York.—p. 565.
*Familial Epistaxis. L. Blumenfeld, New York.—p. 573.
Method of Anesthesia for Opening Peritonsillar Abscess. G. D. Hoople, Boston.—p. 577.
Superior Cervical Sympathetic Ganglion Syndrome. F. E. Palmer, Sterling, Colo.—p. 580.
Atkinson Tracheolaryngoscope. J. F. Callahan, Brockton, Mass.—p. 583.
Procaine: Experimental Carotid Injection. K. M. Houser, Philadelphia.—p. 587.
Simple Nasal Suction Douche. A. J. Shekter, Jamaica, N. Y.—p. 598.
Instrument for Treatment of Chronic Otitis Media with Overheated Air. J. Guttman, New York.—p. 598.
Acute Otitis Media in Adults. L. K. Pitman, New York.—p. 600.
New Knot Tier Used in Controlling Tonsil Hemorrhage. C. D. Render, Chicago.—p. 604.

Familial Epistaxis.—Blumenfeld's patient had two brothers and two sisters who suffered from epistaxis. Almost every one in the family on his mother's side suffered from nosebleeds. He had four children; all were sufferers from recurrent epistaxis.

Maine Medical Association Journal, Portland

17: 131-149 (Aug.) 1926

Proceedings at Seventy-Fourth Annual Meeting of Maine Medical Association.—p. 131.

Medical Journal and Record, New York

124: 189-256 (Aug. 18) 1926

Nature of Malignancy. J. G. Adami, Liverpool.—p. 189.
*Affections of Epiphyses Peculiar to Second Decade. I. Balensweig, New York.—p. 192.
*Diagnostic Value of Hyperchlorhydria. W. W. Sager and H. R. Hartman, Rochester, Minn.—p. 197.
Treatment of Constipation. E. L. Kellogg, New York.—p. 199.
Hypoglycemic Reactions During Insulin Treatment. A. V. Greaves, Nassau, Bahamas.—p. 203.
*Use of Sedatives, Tonics, Endocrines, Etc., in Reeducational Training Treatment of Epileptic. L. P. Clark, New York.—p. 205.
Neurosis and Total Personality. F. Alexander, Berlin.—p. 209.
Psychologic Factors in Treatment of Disease: Paralyses in Childhood. H. Keller, New York.—p. 211.
Skin Pathology. S. Gordon, Philadelphia.—p. 213.
Importance of Pathology in Prevention of Diseases of Childhood. D. M. Lewis, New Haven, Conn.—p. 215.
Malnutrition in Infancy. H. B. Mills and S. Goldberg, Philadelphia.—p. 220.
Care of Premature Baby. W. N. Bradley, Philadelphia.—p. 222.
Essential or Primary Hypotonia in Young Children. J. Sobel, New York.—p. 225.

Diseases of Epiphyses in Second Decade.—Cases are cited by Balensweig which are said to illustrate that the growing pains of the adolescent may resolve itself into an epiphysitis of the vertebrae; of the diaphyseal portion of the epiphyseal line of the capital epiphysis of the femur; of the tibial tubercle,

or of the epiphysis of the os calcis. Traumatism plays only a contributory rôle, whereas, in instances of separation of the epiphysis for the lesser femoral trochanter and of the anterior superior ilial spine, traumatism by indirect violence is the sole cause.

Diagnostic Value of Hyperchlorhydria.—An analysis was made by Sager and Hartman of 331 cases of hyperchlorhydria in which the acids varied from 40 to 72. More than 1,200 cases altogether have been analyzed. He concludes that the degree of gastric acidity is not pathognomonic of any disease, although pernicious anemia never occurs in the presence of hydrochloric acid, and gastric syphilis rarely; also, duodenal ulcer is rare in the absence of free hydrochloric acid. The greatest diagnostic value of a knowledge of the degree of acidity lies in the suggestion carried by the large percentage of carcinoma found associated with the condition of anacidity, their rarity with the condition of hypochlorhydria and hyperacidity, and in the progressive increase in the incidence of duodenal and gastric ulcer with the increase of gastric acidity.

Drug Treatment of Epilepsy a Failure.—Clark emphasizes the fact that the drug treatment of epilepsy at best fulfils little; least of all does it promote an enduring arrest of the seizures in epileptic patients. This is especially true if a sedative plan solely is followed, but combined with other supportive treatment the picture is less gloomy. The maximum of drug advantage is secured if they are employed as adjuvants to an otherwise more embracing therapy. The greatest and surest permanent benefits are obtained when sedation is held to the minimum and supportive and restorative remedies are mainly employed.

Medicine, Baltimore

5: 79-194 (May) 1926

Etiology of Pellagra. J. Goldberger, Washington, D. C.—p. 79.
Constitution and Type in Relation to Disease. C. R. Stockard, New York.—p. 105.
Cerebral Birth Injuries and Their Results. F. R. Ford, Baltimore.—p. 121.

5: 195-373 (Aug.) 1926

*Actions and Uses of Salicylates and Cinchophen in Medicine. P. J. Hanzlik, San Francisco.—p. 197.

Uses of Salicylates and Cinchophen in Medicine.—This summary by Hanzlik covers all the available literature since the introduction of the salicylates and cinchophen into medicine; that is, during the period of the last half century. It is based on a previous summary published twelve years ago in the annual (1914) report of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association, and is essentially an amplification with revisions and additions embodying the results of investigations to date. Since the first review, cinchophen has some into extensive use in the treatment of rheumatism and therefore has been included in this review.

Military Surgeon, Washington, D. C.

59: 145-272 (Aug.) 1926

Epidemiologic Problem. P. R. Hawley.—p. 145.
Plague Epidemiologic Research. C. L. Williams.—p. 155.
Dr. William Brown, Physician General to American Army. B. W. Gahn.—p. 165.
Service of Medical Detachments with Troops in Camp, on March and in Combat. E. F. Haines.—p. 167.
Ureteral Obstruction: Cases. F. McA. Moose.—p. 179.
Effect of Ultraviolet Radiation on Metabolism. W. J. Tindall.—p. 186.

Nebraska State Medical Journal, Norfolk

11: 289-328 (Aug.) 1926

Diagnosis of Gastro-Intestinal Disease from Good History. W. C. Alvarez, Rochester, Minn.—p. 289.
Etiology and Pathology of Gastric Ulcer. A. J. Miller, Omaha.—p. 298.
Diagnosis of Gastric Ulcer. W. Thompson, Omaha.—p. 300.
Laboratory Diagnosis of Peptic Ulcer. M. J. Breuer, Lincoln.—p. 303.
Roentgen-Ray Evidence of Gastric Ulcer. C. Ballard, Omaha.—p. 305.
Medical Treatment of Stomach Ulcer. A. C. Barry, Norfolk.—p. 307.
Surgical Treatment of Gastric Ulcer. B. R. McGrath, Grand Island.—p. 309.
Modern Aspects of Nutrition: Pathology of Malnutrition. 15. Ketogenic Diet in Treatment of Epilepsy. V. E. Levine, Omaha.—p. 314.
Bacillus Subtilis in Pure Culture Complicating Mastoiditis and Meningitis. D. D. Sanderson, Lincoln.—p. 318.

New York State Journal of Medicine, New York

26: 697-732 (Aug. 15) 1926

*Early Recognition of Various Types of Syphilis. A. Crance, Geneva.—p. 697.
Bullets as Evidence in Shooting Cases. C. H. Goddard, New York.—p. 701.
Legal Aspects of Obstetrics. H. M. Gusman, Philadelphia.—p. 705.
Jewett's "Country Doctor." L. J. Bragman, Syracuse.—p. 708.
*Reducing Cost of Syphilis in Industry. W. A. Sawyer and B. J. Slater, Rochester.—p. 711.
Responsibility for Effects of Severe Thyroidism. F. H. Lahey, Boston.—p. 713.

Oral Sign of Syphilis.—An oral sign of late syphilis is described by Crance which consists chiefly of a triangular or fan-shaped thickened area of leukoplakia in the mucous membrane at the angles of the mouth. Of the 150 cases analyzed, twenty-one presented this oral sign.

Reducing Cost of Syphilis in Industry.—Syphilis is costly to industry and the state; hence Sawyer and Slater urge making blood tests on all employees in order to detect and treat cases of syphilis. The work has three aspects: It is protection to the individual, to public health, and to industry. Among 3,447 persons tested by the authors, about 3.75 per cent gave positive reactions.

Ohio State Medical Journal, Columbus

22: 738-816 (Sept.) 1926

Certain Diseases of Mouth and Tongue Important from Diagnostic Standpoint. C. L. Cummer, Cleveland.—p. 757.
*End Result of Radium Treatment in Cancer of Cervix. J. L. Ransohoff, Cincinnati.—p. 763.
Progressive Changes in Refractive Media of Eye. C. F. Clark, Columbus.—p. 764.
Mental Disturbances Observed in General Hospital. G. W. Hall, Chicago.—p. 770.
*Causes of Absenteeism in School Children: Defects. C. D. Barrett, Mansfield.—p. 773.
*Rupture of Uterine Scar of Previous Cesarean Section. J. T. Smith, Jr., Cleveland.—p. 776.
Relationship of Department of Health to Practice of Medicine. C. W. Waggoner, Toledo.—p. 778.

Results of Radium Therapy in Cancer of Cervix.—Of sixty cases considered by Ransohoff, six patients are well and free from recurrence from fourteen to five years after treatment. Of these six cases, four were operable, one borderline and one inoperable. Hence, Ransohoff concludes that the results of radium treatment of early carcinoma of the cervix are at least as favorable as those following operation. In contrast to the formidable operative procedure the method is safe, and free from unpleasant sequelae. Radium treatment should supplant operation in the treatment of early cases.

Causes of Absenteeism in School Children.—The results given by Barrett are suggestive that children with abnormal tonsils and those 10 per cent or more underweight miss more school because of illness than other children.

Rupture of Cesarean Scar.—As in other previously reported cases, the rupture of the cesarean section scar in Smith's case was caused by imperfect healing of the incision, which, in turn, was due to infection.

South Carolina Medical Association Journal, Greenville

22: 139-160 (July) 1926

*Tularemia: Five Cases. W. R. Wallace, Chester.—p. 141.
Diagnosis of Hyperthyroidism. T. R. Littlejohn, Sumter.—p. 144.
General Nutrition and Focal Infections in Infancy and Childhood. I. H. Grimball, Greenville.—p. 146.
Orlando Benedict Mayer, Jr., M.D., Newberry, S. C. F. D. Rodgers, Columbia.—p. 148.
Streptococcic Infection in Acute Mastoiditis. R. McKinney, Memphis, Tenn.—p. 153.

Tularemia.—Wallace reports five cases of tularemia occurring in persons who had never been outside of the state of South Carolina. In all the cases, the source of the infection was traced to rabbits.

Southwestern Medicine, Phoenix, Ariz.

10: 331-372 (Aug.) 1926

Tumor of Kidney. K. D. Lynch, El Paso.—p. 331.
Present Status of Wassermann Reaction. P. B. Newcomb, Tucson.—p. 333.

Radiant Energy in Treating Accessible Malignancy About Head and Face. W. W. Watkins, Phoenix.—p. 338.
Tuberculosis Among Indigent and Children in Health Centers. C. O. Giese, Colorado Springs.—p. 343.
Scarlet Fever Control. W. H. Enneis, Clayton, N. M.—p. 347.
Morbidity Reporting. P. M. Ruleaw, Santa Fe.—p. 349.

Texas State Journal of Medicine, Fort Worth

22: 235-302 (Aug.) 1926

*Diagnosis of Subacute Bacterial Endocarditis. H. M. Winans and J. Caldwell, Dallas.—p. 245.
Treatment of Hemorrhoids by Injection of Chemicals. H. T. Hayes, Houston.—p. 247.
Value of Field of Vision in Diagnosis of Eye Disease. N. H. Bowman, Waco.—p. 252.
*Case of Neurochoroiditis with Pituitary Insufficiency, Probably Due to Inherited Syphilis. H. L. Hilgartner, Austin, and J. S. Lankford, San Antonio.—p. 258.
Puerperal Sepsis. M. C. O'Brien, San Antonio.—p. 261.
Cancer of Uterus. M. W. Sherwood, Temple.—p. 263.
Use of Radium in Cancer of Uterus. O. L. Norsworthy, Houston.—p. 267.
*Carotid Ligation in Epistaxis. H. McKnight, Fort Worth.—p. 271.
Cystoscopic Removal of Ureteral Calculi. H. L. Cecil, Dallas.—p. 275.
Organization and Administration of Municipal Health Departments. J. W. Brown and W. H. Scott, El Paso.—p. 278.
Duodenal Ileus. K. H. Aynesworth, Waco.—p. 284.
Symptoms of Enlarged Thymus. H. L. Moore, Dallas.—p. 289.

Diagnosis of Subacute Bacterial Endocarditis.—Four points in diagnosis are stressed by Winans and Caldwell: the fever, the emboli, the evidence of endocarditis (which must not be stressed too heavily) and the blood cultures. With a proper consideration of these factors and a suspicious attitude toward all low grade, long continued fevers, a proper diagnosis should be made.

Neurochoroiditis with Pituitary Insufficiency.—A case is cited by Hilgartner and Lankford which confirms their opinion that a negative Wassermann reaction must be disregarded when the clinical symptoms point to syphilitic inheritance; and further, that inherited syphilis has a special affinity for all those tissues which evolve from the ectoderm of the embryo: the skin, the cornea, the lens, the choroid in part, the retina which comes from the neural tube originally derived from the ectoderm, the brain, the nervous system, the special senses and the posterior part of the pituitary. It has been the authors' clinical experience that specific inheritance may affect the pituitary body very seriously in the way of hyperplasia, producing pressure with secondary symptoms, persistent and violent headache, and disease of the eyes. In many cases there is deformity of the sella turcica, but the excruciating headaches may come from hyperplasia without such deformity. When there is pituitary insufficiency, not infrequently the other endocrines are disturbed in function.

Carotid Ligation in Epistaxis.—A case is reported by McKnight of extreme epistaxis of traumatic origin requiring carotid ligation; first the external, and then the common carotid arteries were ligated. Ten months later, a marked thrill at the site of the ligation suggested that a certain amount of canalization of the clot had taken place. A review of the literature in epistaxis revealed only two cases in which common carotid ligation alone was done. In seventeen cases, external carotid ligation alone was done. All cases show successful results, except in one case of double common carotid ligation in inoperable sarcoma.

Virginia Medical Monthly, Richmond

53: 279-346 (Aug.) 1926

Diagnosis of Diseases of Esophagus. L. H. Clerf, Philadelphia.—p. 279.
Cholecystography. F. M. Hodges, Richmond.—p. 281.
Treatment of Summer Diarrhea. W. B. McIlwaine, Petersburg.—p. 285.
Cystitis: Symptom. J. F. Geisinger, Richmond.—p. 288.
Borderlands of Pathology. J. W. Preston, Roanoke.—p. 292.
Cardiac Pain. J. M. Hutcheson, Richmond.—p. 295.
Paralysis of Left Recurrent Laryngeal Nerve in Mitral Stenosis. E. U. Wallerstein, Richmond.—p. 298.
Endoscopy at University Hospital. F. D. Woodward, Charlottesville.—p. 299.
Hunner's Ulcer of Bladder: Ten Cases. A. I. Dodson, Richmond.—p. 305.
Iodine in Dysthyroidism. W. P. Adams, Norfolk.—p. 310.
Practical Points in Obstetrics. W. H. Ribble, Wytheville.—p. 313.
Surgical Indications of Inflammatory Diseases of Gallbladder. A. P. Heineck, Chicago.—p. 315.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 285-328 (Aug. 14) 1926

*Mechanism of Inheritance. F. A. E. Crew.—p. 285.
*Anesthesia in Abdominal Surgery. H. Finsterer.—p. 290.
Blood Pressure and Anesthesia as Vital Factors in Safer Gastric Surgery. C. W. Moots.—p. 295.
Acetylene-Oxygen Anesthesia in Gastric Surgery. T. Brandt.—p. 297.
*Endotracheal Nitrous Oxide-Oxygen-Ether Anesthesia in Gastric Surgery. C. L. Hewer.—p. 298.
Intravenous Somnifene Anesthesia in Gastro-Intestinal Surgery: I. MacDonald.—p. 301.
Potassium Chlorate and Congenital Goiter. R. K. White.—p. 302.
Herpes and Varicella. W. J. Meldrum.—p. 302.
Cerebral Syphilis: Convulsions: Death. N. M. Goodman.—p. 302.
Medical Review of Soviet Russia: IV. Change in Type and Incidence of Disease. W. H. Gantt.—p. 303.

Mechanism of Inheritance.—Crew urges that medical men should be well acquainted with the principles of the science of genetics, because such knowledge will give them a better understanding of many problems.

Anesthesia in Abdominal Surgery.—Finsterer recommends combined anesthesia in every greater laparotomy in which it is impossible to perform the whole operation under regional anesthesia. Mesenteric anesthesia is almost harmless and may be resorted to in every case. It is the most effective agent in the combined anesthesia. Paravertebral anesthesia should be used only in operations in which the injection on one side is sufficient. Splanchnic anesthesia, after the method of Braun, is almost without danger, and in about 90 per cent of operations on the upper abdomen sufficient. Parasacral anesthesia, combined with blocking of the lumbar segment, is sufficient for radical operation for cancer of the rectum and for all gynecologic operations. By the use of regional or combined anesthesia the results of major abdominal operations are improved, because death from so-called operative shock, pneumonia, and atony of the bowel can be almost always avoided.

Anesthesia in Gastric Surgery.—The method which, in Hewer's opinion, gives the best results of all in gastric surgery, consists in administering a mixture of nitrous oxide, oxygen and ether through a tracheal catheter. He has employed this method as a routine for five years in about 3,500 cases, of which about 1,100 were for upper abdominal operations.

Japanese Journal of Neurology and Psychiatry, Tokyo

2: 1-80 (July) 1926

Nerve Consumption and Nerve Change. J. Shimazono.—p. 1.
*Psychiatric Bird's-Eye View of Nippon. K. Miyake.—p. 8.
Decrementless Conduction. G. Kato.—p. 18.
*New Test of Paratony, Comparable to That of Aschner and Tschermak. T. Saito.—p. 49.

Psychoses in Japan.—Psychoses as observed in Nippon are said to differ in many respects from those in Europe and America, especially with regard to the symptom, course, destination and age of onset of the affections, probably owing to differences of climate, of habits and customs, and of constitution of the different races. The percentage ratio of sexes and types differs also in each psychosis from that of other nations. Miyake states that in 1924 the ratio of the insane to the sane in Japan was 1:6,000 approximately. The census return of June 30, 1918, reports the total number of the insane, including hospital occupants, to have been 64,934; a ratio of 1.18 per thousand of population. Dementia praecox is the most frequently occurring disease; next came manic-depressive psychoses; third, general paralysis. Notwithstanding the fact that there exists a big consumption of "sake" (a national beverage containing from 14 to 18 per cent of ethyl alcohol), chronic cases of alcohol psychoses coming under hospital treatment, especially the Korsakow psychosis, types with pathologic jealousy and delirium tremens, are encountered rarely. Cases of hysteria also are found not so infrequently. Cases of drug addiction are by no means rare; on the contrary, they are gradually increasing.

Test of Paratony.—In certain vagosympathicotonic states, Saito has noted variation in the rate and volume of the pulse by palpating the iliac region. In cases of catatonic dementia praecox, neurasthenia and beriberi a positive result is obtained. The manic-depressive psychoses, paranoid dementia praecox, general paralysis, idiocy, degeneracy and various forms of atherosclerosis give negative results.

Japan Medical World, Tokyo

6: 133-161 (June 15) 1926

Presence and Rôle of Cyanide and Oxycyanide Groups in Organism. A. A. Horvath.—p. 133.
Anatomic Studies on Nerve Fibers of Flocculus Cerebelli and Nucleus Cerebelli (Mainly Nucleus Tecti). G. Kuzume.—p. 137.
Sulphur-Containing Gas Production by Bacteria. H. Yaoi.—p. 139.
Experimental Studies on Meningitic Labyrinthitis. T. Kasai.—p. 144.

6: 163-197 (July 15) 1926

*Feeding Tadpoles of Bufo Bufo Japonicus (Schleg.) and Rana Nigromaculata (Hall) with Endocrine Organ Cells. Y. Miyagawa and K. Wada.—p. 163.
*Pathologic Histology of Brain and Spinal Cord of Epidemic Encephalitis of 1924 in Japan. Z. Kawakami.—p. 182.
Behavior of Proteases: Chemical Nature of Amylases. S. Kato.—p. 184.

Results of Feeding Endocrines.—Miyagawa and Wada fed the endocrine glands of the ox to frogs for the purpose of noting the effect on the eggs and the young tadpoles. In some instances growth was hastened, in others retarded.

Histology of Brain in Epidemic Encephalitis.—A study of the brain and spinal cord from six cases leads Kawakami to conclude that the cerebral symptoms in epidemic encephalitis must be due to the local disturbance of blood circulation caused by an unknown injurious substance produced either in the brain or in the spinal cord or in both. Hyperemia hemorrhage, perivascular cellular infiltration, liquefaction, calcification and thrombi were the more important observations.

Journal of Biochemistry, Tokyo

6: 261-382 (July) 1926

Glycerophosphatase. H. Kobayashi.—p. 261.
Adsorption of Pepsin. K. Kikawa.—p. 275.
Chicken Bile Desoxycholic Acid: Influence on Pancreas-Steapsin Action. S. Yonemura.—p. 287.
Chemical Composition of Diazo Urine in Phthisis. Y. Komori.—p. 297.
Alcohol in Blood and Liver of Asphyxiated Animals. M. Aoki.—p. 307.
Reversible Hemolysis. K. Fukushima.—p. 315.
Chemical Analyses of Shark's Fins. K. H. Lin.—p. 323.
Influencing Liver Arginase Action by Means of Extraneous Factors. S. Hino.—p. 335.
Effect of Quinine and Several Hormone Preparations on Splitting of Phosphoric Acid During Autolysis of Muscles and Liver. Y. Oda.—p. 367.

Journal of Tropical Medicine and Hygiene, London

29: 217-232 (Aug. 2) 1926

Importance of Symbiosis. A. Castellani.—p. 217.
New Species of Hepaticola (Nematoda) from Rat's Stomach. H. A. Baylis.—p. 226.
*Hookworm Control with Chenopodium-Carbon Tetrachloride. H. B. O'Brien.—p. 227.

Hookworm Control in Siam.—A standard dose (2 cc. maximum) of carbon tetrachloride (60 per cent) and oil of chenopodium (40 per cent) was used by O'Brien in a mass therapy campaign in Siam. In all, 225,000 persons were treated with this mixture up to Sept. 1, 1924, with three deaths.

Lancet, London

2: 365-414 (Aug. 21) 1926

*Hemorrhagic Diathesis: Angiostaxis. H. L. Tidy.—p. 365.
*Comparative Value of Renal Efficiency Tests in Patients with Enlarged Prostates. J. Marrack and S. Robinson.—p. 369.
*Auricular Flutter in Infancy. F. J. Poynton and W. G. Wyllie.—p. 371.
*Heliotherapy in Pulmonary Tuberculosis. J. E. Wood.—p. 372.
Effect of Roentgen Rays on Rous Chicken Tumor. S. Russ and G. M. Scott.—p. 374.
*Technic of Blood Transfusion. P. C. Gibson.—p. 375.
*Control of Enteric Fever in Mental Hospitals. C. A. Hogg and O. Latham.—p. 377.

2: 415-480 (Aug. 28) 1926

Student's Guide—Session 1926-1927.—p. 415.

Hemorrhagic Diathesis.—The conditions due to the hemorrhagic diathesis according to Tidy include the primary purpuras, cases recorded in the literature under such titles as "chronic," "recurrent" and "hereditary" purpura, and as "essential thrombopenia," some of the ill defined blood diseases of childhood and some of the forms of local hemorrhages from the mucous membranes. The condition is usually sporadic, but may be hereditary or familial. The initial defect is probably abnormal permeability of the endothelium of the small blood vessels. There is no essential difference between the various groups. The cases differ in degrees of severity and in the effects of secondary changes. Changes in the total number and differential distribution of the blood cells, in the number of platelets, in the condition of the bone marrow, and in the size of the spleen are secondary phenomena. There are no constant or typical changes. Reduction in the number of platelets in any condition is not necessarily followed by hemorrhages, but is a factor in their occurrence and severity. Reduction may occur in any form of purpura and is not a criterion for the separation of a special type. Splenectomy is beneficial without being a "cure." The question of splenectomy should be considered in every case of the hemorrhagic diathesis. The decision as to operation should be based essentially on the clinical condition of the patient in the present and in the past. The number of platelets, the size of the spleen, and the bleeding time are of subsidiary importance only. In acute forms and with advanced anemia, blood transfusion should be performed first. The term "angiostaxis" is suggested to include the group of the hemorrhagic diathesis.

Value of Renal Function Tests.—Three tests—blood urea, urea concentration (MacLean), and phenolsulphonphthalein—have been used at the London Hospital for more than four years, and a summary of results of these tests is given by Marrack and Robinson. These cases illustrate the value of the blood urea estimation; the urea concentration test is of some value to supplement the blood urea test, probably most particularly in those cases in which the blood urea has fallen after treatment; satisfactory conclusions can be drawn only from the phenolsulphonphthalein test when the results are high—such a result can be taken as certain evidence of sound kidneys—but the test is disappointing owing to the frequent occurrence of low results when the kidneys appear to be sound.

Auricular Flutter in Infancy.—It is stated by Poynton and Wyllie that their case is the first recorded of auricular flutter in an infant. The case showed many features of clinical interest, and one of them is the congenital origin of the condition. The early attacks of abdominal pain, with blueness round the mouth, screaming and drawing up of the legs, resemble in some respects those which for many years have been attributed in infancy to flatulence and dyspepsia, results of an unsuitable diet, and they were regarded as such by his mother. When he was first admitted to the hospital the picture was that of an acute cardiac failure, such as is seen occasionally resulting from acute influenza, virulent cardiac rheumatism, or profound diphtherial damage to the cardiac muscle. Another interesting point is that, although this child has had numberless attacks of greater or less severity, and during the greater part of his life his heart has been beating at about 150 per minute, he is well grown, bright colored, and as wayward as any healthy child of a corresponding age. In the treatment, complete rest was the great agent. Digitalis in small doses was helpful, and on one occasion quinidine was used, the heart rapidly slowed down; but none of the drugs employed mastered the essential difficulty, the prevention of recurrences.

Heliotherapy in Pulmonary Diseases.—Wood considers heliotherapy a valuable auxiliary method of treatment in pulmonary as well as in nonpulmonary disease.

Blood Transfusion.—Gibson describes a method of transfusion that may be carried out in the wards with safety and reasonable certainty of success, without the need of skilled assistance, independent of strictly aseptic conditions and not requiring elaborate apparatus, difficult to improvise and difficult to sterilize.

Typhoid in Mental Hospitals in New South Wales.—While there has been a more or less steady decline in the incidence

of typhoid in the state of New South Wales since 1903, Hogg and Latham assert that individual cases and epidemics have recurred in mental hospitals until the advent of antityphoid inoculation. In the last ten years only twelve cases were observed, and in the inoculated only two, while the hospital population has increased more than 90 per cent. Evidence seems to show that both patient and nurse are especially liable to infection on their first entry to a mental hospital; steps should therefore be taken to insure their adequate protection as soon as possible after arrival.

Medical Journal of Australia, Sydney

2: 131-166 (July 31) 1926

*Abdominal Methods of Obstetric Diagnosis. J. C. Windeyer.—p. 131.
Obstetric Forceps. C. Coghlan.—p. 143.
Influenzal Meningitis with Added Pneumococcal Infection. H. E. Kincaid.—p. 146.
*Congenital Inguinal Hernia with Two Sacs. O. K. Hartridge.—p. 146.
*Double Ectopic Gestation. F. S. Stuckey.—p. 147.
Two Cases of Polycythemia. F. S. Hansman.—p. 147.
Lymphosarcoma Involving Right Auricle and Greater Vessels. R. S. Steel.—p. 148.

Abdominal Methods of Obstetric Diagnosis.—Windeyer describes his method of external abdominal examination by inspection and palpation, which, he avers, differs materially from that usually included in obstetric textbooks. In both the normal and the abnormal case the method is said to eliminate vaginal examination altogether or greatly to diminish their number, and with the more general adoption of such external methods of examination both before and during labor there will follow a diminution of the number of cases of puerperal sepsis.

Unusual Congenital Inguinal Hernia.—Hartridge reports a case of congenital left inguinal hernia in which two sacs were found. One sac contained omentum, the other a small portion of the sigmoid colon. The posterior sac was found to communicate with the anterior just above the testis, the edge of the dividing wall being most prominent. This second sac opened into the abdomen to the inner side of the other, being separated only by the crista, which was tough and unyielding.

Double Ectopic Gestation.—The history in Stuckey's case seems to point to a double conception having occurred, one in each tube. After developing to the stage of five or six weeks apparently the left tube attempted to deliver itself of its burden through its fimbriated extremity. The right tubal pregnancy continued for a further period of four or five weeks and then ruptured, again making escape through the fimbriated extremity without bursting the tube itself.

Medical Journal of South Africa, Johannesburg

21: 327-354 (July) 1926

Some Applications of Biochemistry to Clinical Medicine. A. D. Stammers.—p. 329.
Enteric Fever in Transvaal Memorial Hospital for Children. B. G. Melle.—p. 332.
Medical Library Policy in Witwatersrand. R. A. Dart.—p. 333.
*Extroversion of Bladder. J. J. Levin.—p. 336.

Extroversion of Bladder.—Levin made an intraperitoneal transplantation of the ureters first, and about three months later an extraperitoneal removal of the posterior wall of the bladder completed the treatment. The result was entirely satisfactory. The patient was able to control micturition for as long as two hours during the day and nine hours at night. There is no indication of infection of the upper urinary tract.

Oriental Journal of Diseases of Infants, Kyoto, Japan

1: 51-90 (July) 1926

*Vitamine B Content of Mother's Milk of Infants Suffering from Infant Beriberi. T. Suzuki.—p. 51.
*Lead Content of Head Hair of Nurslings and Their Mothers Affected with Serous Meningitis. K. Tada.—p. 73.
Leukocyte Inclusions. K. Okashima.—p. 78.
Osmotic Pressure of Cerebrospinal Fluid. Effect on Body Temperature. J. Kaneko.—p. 79.
Dysentery with Intestinal Hemorrhage in Children. R. Sasaki and E. Manabe.—p. 80.
Clinical Application of Flocculation Reaction with Dried Japanese Fish with Blood Serum and Plasma of Syphilitic Children. S. Takeda.—p. 81.
Id. R. Sasaki.—p. 82.
Experimental Studies on Supravital Stainable Substances in Erythrocytes. M. Nishitani.—p. 83.

Vitamin Content of Beriberi Milk.—Suzuki concludes that beriberi milk contains a lesser degree of vitamin B, but that beriberi is not caused by avitaminosis, because in beriberi hypertrophy of the heart is always to be found, a symptom lacking in avitaminosis.

Lead Content of Head Hair of Meningitis Patients.—In Japan, nurslings are affected with a meningitis which, though resembling serous or tuberculous meningitis, often disappears without leaving any after-effects. It has been shown to be due to lead poisoning. Tada has found that the head hair of these infants and their mothers contains comparatively large quantities of lead—much more than is present in the head hair of normal Japanese.

Tubercle, London

7: 417-472 (June) 1926

*Lung Rupture in Artificial Pneumothorax Treatment of Pulmonary Tuberculosis. R. C. Hutchinson and L. G. Blair.—p. 417.
*Pathology of Pleural Adhesions in Pulmonary Tuberculosis. S. R. Gloyne.—p. 424.
Mortality from Tuberculosis in Norway. G. H. M. Waaler.—p. 433.
Accessory and Alternative Treatment to Artificial Pneumothorax. H. M. Davies.—p. 437.
Tuberculosis the Fifth Cause of Death in United States. A. K. Krause.—p. 442.
Urban and Rural Trends of Tuberculosis Mortality in United States Contrasted. A. K. Krause.—p. 449.
Decline of Tuberculosis Mortality in United States and Influence of Influenza Epidemic of 1918. A. K. Krause.—p. 455.

Lung Rupture in Artificial Pneumothorax.—In six cases reported by Hutchinson and Blair in which air was not withdrawn, the "staircase fall" chart was present. When this phenomenon occurs, the authors consider that the diagnosis of lung rupture can be made with certainty. In one case in which, on two separate occasions, the diagnosis of lung rupture was immediately confirmed by raised intrapleural pressures, air was withdrawn and the typical temperature chart was not manifested. This suggests that suddenly increased intrapleural pressure is the primary cause of the temperature. In only three cases were the symptoms and physical signs definite and obvious soon after the initial rise of temperature. In the four remaining cases they were not suggestive. The accident may occur at any time between refills. It does not appear to follow unduly increased intrapleural pressure at such refills.

Pathology of Pleural Adhesions.—Apart from complete obliteration of the pleural sac, adhesions were found by Gloyne in a series of cases of pulmonary tuberculosis at necropsy, at the following sites, arranged in order of frequency: (*a*) upper lobe; (*b*) interlobular fissure; (*c*) pericardium; (*d*) lower lobe; (*e*) diaphragm; (*f*) mediastinal pleura. Histologically considered, the following were the stages in the formation of a pleural adhesion: (*a*) pleural exudation with endothelial proliferation; (*b*) the formation of fibrin; (*c*) granulation tissue production; (*d*) the development of new blood capillaries; (*e*) formation of connective tissue. To these may be added three factors which were definitely characteristic of a tuberculous lesion: (*f*) the presence of tubercle bacilli, chiefly in the granulation tissue areas; (*g*) the formation of giant cells; (*h*) production of caseation. If an adhesion is ruptured at a point at which tubercle bacilli can be liberated into the pleural sac, a secondary effusion is likely to follow. This, in Gloyne's opinion, is probably what occurs from time to time in cases of pleural effusion complicating the operation of artificial pneumothorax induction. Elastic tissue was found in adhesions, but this observation was not constant in occurrence. The elastic fibers would appear to be derived from the subpleural elastic layer. Pleural adhesions experimentally induced in guinea-pigs showed stages of formation similar to those found in human lesions. They showed particularly well the newly formed blood capillaries passing from the lung through the pleura into the adhesion. Connective tissue formation was first noted in the adhesion of an animal killed on the tenth day after infection.

Annales de l'Institut Pasteur, Paris

40: 455-540 (June) 1926

Microbes of the Soil. S. Winogradsky.—p. 455.
*Action of Eucalyptol on Tubercle Bacillus. P. Fabry.—p. 521.
Epizootic Abortion in Mares. L. Panisset and J. Verge.—p. 524.

Action of Eucalyptol on Tubercle Bacillus in Vitro.—Bovine tubercle bacilli were cultivated in twelve tubes, each containing 50 cc. of glycerinated bouillon. To all but one of the tubes was added from 0.1 to 1.1 cc. of eucalyptol. The tubes were kept in the thermostat for two months. The culture was positive in the control tube, negative in the others. Bacilli from the latter were transferred to culture tubes without eucalyptol; no growth took place. Bovine tubercle bacilli were cultivated in four tubes containing glycerinated potato, at the bottom of two of which 0.1 cc. of eucalyptol was placed. Twenty days later, the culture proved positive in the control tubes, negative in the others. A tube containing eucalyptol was placed within another tube in which the bacilli were cultivated on potato. The culture proved negative. It was thus evident that even eucalyptol fumes are able to prevent the growth of bovine tubercle bacilli. A guinea-pig was inoculated with the bacilli, and then kept for twenty-nine days in an atmosphere impregnated with eucalyptol fumes. The animal not only did not develop tuberculosis, but gained in weight, and is still alive and healthy, more than two months later.

Archives des Maladies de l'Appareil Digestif, Paris

16: 633-752 (June) 1926

Duodenal Giardia. M. R. Castex and J. C. Galan.—p. 633.
*Physiologic Observations on Duodenal Pumping. A. Kobryner.—p. 646.
Physicochemical Tests for Gastric Function. S. Cytronberg.—p. 653.
Radiography in Cholecystogastrostomy. Mallet-Guy and Beaupère.—p. 686.

Physiologic Observations Made on Duodenal Pumping.—Kobryner devised a method whereby the presence of the duodenal tube in the duodenum may be ascertained with a precision beyond that of physicochemical tests of the gastric or duodenal contents. He noted that the passage of the duodenal contents through the tube occurred intermittently. This fact appears to be due to constriction of the tube by a muscle situated above the pylorus. In order to protect the tube against outside pressure, he places small glass tubes, 0.25 or 0.5 cm. long, close to each other, within the rubber tube, at a distance of 45 or 50 cm. from its oral end. The tube is inserted and then air is introduced with a syringe. Resistance to the air pressure encountered at the time that the passage of the juice through the tube is interrupted shows that the capsule of the tube has entered the duodenum. This was confirmed by the constant presence of trypsin in the juice withdrawn. Kobryner used his tube for physiologic research in numerous cases. Contractions of the pylorus did not seem to depend on the acidity of the gastric contents nor on the alkalinity of the duodenal contents. The contractions are probably connected with Auerbach's and Meissner's plexuses, which may be influenced by the higher centers of the cerebrospinal system. The bile passes into the duodenum intermittently. Hence the duodenal content may be colorless at certain moments, gradually become greenish, and then again colorless. The colorless period may last a few hours, and be followed by a short greenish period, or vice versa, or both periods may be short. The colored and colorless juices, obtained from duodenal pumping, should be examined separately, to enable lesions of the biliary tract to be differentiated from those of the duodenum. After injection of peptone or magnesium sulphate, gallbladder bile obtained during the colorless period may help in distinguishing lesions of the gallbladder from those of the liver. The periodic character of biliary evacuation depends on the functioning of Oddi's sphincter. It is presumed that inflammatory lesions of the biliary apparatus may affect the rhythm of contractions of this sphincter. Comparative studies of pyloric contractions in normal and pathologic conditions may be based on the flow of the juice through the tube.

Comptes Rendus de la Société de Biologie, Paris

95: 61-148 (June 18) 1926. Partial Index

*Blood Serum After Venesection. Brocq-Rousseu.—p. 68.
*Spirochetes in Genital Condylomas. P. Séguin and M. Guérin.—p. 69.
Action of Mineral Waters on Diphtheria Toxin. G. Billard.—p. 74.
The pH of Mineral Waters. H. Lassalle and J. Fache.—p. 76.
*Method for Obtaining Methemoglobin. V. Balthazard and P. Condréa.—p. 81.
Action of Fluoresceins on Blood Plasma. P. Girard and E. Peyre.—p. 88.
*Elimination of Arsenic in Nephritis. L. Mathieu and P. Chatelain.—p. 101.
Pituitary Colloid and Cerebrospinal Fluid. R. Collin.—p. 107.
*Vaccine Reactions and Cerebrospinal Fluid. V. de Lavergne.—p. 110.
*Formation of Antibodies After Removal of Antigen. M. Nasta and R. Brauner.—p. 137.

Output of Blood Serum After Successive Venesections.—Brocq-Rousseu compared the proportion of serum to that of other elements of the blood, before and after venesection. In ten of twelve horses the percentage of the serum was 3.6 per cent higher at the second bloodletting than at the first. The serum content rose steadily to the fifth venesection. Evidently a considerable dilution of the blood entails changes in its composition, including that of the serum.

Spirochetes in Condylomas of Genital Organs.—Séguin and Guérin found spirochetes in nine of eleven acuminate condylomas of the genitals and in two of the anus. The spirochetal infection was especially pronounced in the florid condylomas. This tends to prove that if the spirochete is not the primary factor of the hyperplasia, it at least favors its development.

Utilization of Sodium Bicarbonate in Mineral Waters Depends on Carbon Dioxide.—Lassalle and Fache's experiments were made with Vichy water, containing 4.36 Gm. of sodium bicarbonate per liter. The whole of the bicarbonate was found in the duodenum when the carbon dioxide content of the administered water was high (the p_H therefore low). No more than 2.12 Gm. of the sodium bicarbonate had passed from the stomach when the carbon dioxide was low and the alkalinity high. Since the therapeutic effect of such waters depends largely on the intraduodenal action of the sodium bicarbonate, they conclude that the effect of treatment with alkaline waters is influenced by their hydrogen ion concentration, which depends on the carbon dioxide content.

A Rapid Method for Obtaining Pure and Stable Methemoglobin.—Balthazard and Condréa's method consists in mixing defibrinated blood with an equal volume of neutral glycerin and 1 cc. per cent glacial acetic acid. The mixture is left in the thermostat for three or four hours. This solution of methemoglobin is free from oxyhemoglobin and is not altered by light or air.

Elimination of Arsphenamine Arsenic with Feces and Urine in Nephritis.—In Mathieu and Chatelain's five patients with subacute or chronic nephritis, elimination of the arsphenamine arsenic in the stools was almost normal. Its elimination in the urine was greater in four, being in one instance twice the normal. In only one instance was it slightly diminished. Contrary to what occurs with urea and chloride, the elimination of arsenic is not impaired in moderate renal insufficiency.

Reactions to Vaccines and the Cerebrospinal Fluid.—In two persons injected with 2 cc. of typhoid-paratyphoid (T. A. B.) vaccine, there appeared about three hours later local numbness, chills, fever, nausea, headache, rapid pulse and low blood pressure. One had syncope on standing up, the other presented a patch of herpes. In the cerebrospinal fluid there were hypercytosis and hyperglycorrhachia with normal or slightly increased albuminosis. Shock from vaccines may induce changes in the cerebrospinal fluid similar to those in serum sickness. The same changes possibly occur with all clinical reactions testifying to a condition of shock.

Formation of Antibodies After Antigen is Suppressed.—Nasta and Brauner injected an antigen from typhoid bacillus or cholera vibrio into the lobule of the ear of rabbits. The ear was immediately cut away, and a search for agglutinins was made on successive venesections. The antibody content was the same as when the antigen remains in the organism. The amount of antibodies was considerably increased after

a second injection under the same conditions. The formation of agglutinins was more constant with the typhoid bacillus than with the cholera vibrio. The antibodies were specific for the typhoid bacillus, and not for the paratyphoid. Local anesthesia with cocaine did not seem to influence the formation of antibodies, which is reduced or nil when general anesthesia with ether is used.

Gynécologie et Obstétrique, Paris

14: 1-80 (July) 1926

Physiology of Human Amnion. H. Keiffer.—p. 1.
Endocrine Diseases in Gynecology; Biologic Diagnosis. C. A. Castaño and A. Marco del Pont.—p. 21.
*Prophylaxis of Obstetric Trauma. M. G. Serdukoff.—p. 29.
Extra-Uterine Pregnancy and Menstrual Rhythm. Crainicianu.—p. 37.
Myoma of Small Intestine. G. Muller.—p. 44.
Treatment of Malaria in the Pregnant. M. Ubago.—p. 50.

Petrolatum in Prophylaxis of Obstetric Injuries.—Serdukoff says that his experience in 2,270 obstetric cases has confirmed the great value of vaginal injection of petrolatum as an aid in the maneuvers required in delivery, thus warding off complications. He injects from 50 to 60 Gm. of liquid petrolatum into the space between the presenting head and the perineum, the latter forcibly drawn down with the forefinger and middle finger hooked in the opening into the vagina. The injection is best made while the head is still movable. The petrolatum should be sterilized by boiling at least thrice. It seems to enhance or even replace the physiologic action of the vernix caseosa. With this method, injuries of the vagina and of the external genitals were reduced by over half. The proportion of lacerations of the perineum decreased by 5 per cent. The healing of postpartum fissures and ulcerations was more rapid, and the occurrence of colpitis was reduced to less than half what it had been before.

Médecine, Paris

7: 645-704 (June) 1926

Value of Artificial Pneumothorax in Adults. F. Bezançon et al.—p. 645.
*Artificial Pneumothorax for Hemoptysis. A. Jacquelin.—p. 659.
Pleural Effusion in Artificial Pneumothorax. F. Bezançon et al.—p. 665.
Pleural Adhesions in Artificial Pneumothorax. P. Braun and R. Azoulay.—p. 671.
Indications and Technic for Oleothorax. F. Bezançon et al.—p. 682.
*Digestive Disturbances with Artificial Pneumothorax. P. Braun.—p. 690.
Phrenicotomy in Pulmonary Tuberculosis. A. Jacquelin.—p. 695.
Parasite of Tuberculosis. F. Bezançon. Supplement.—pp. 3-46.

Artificial Pneumothorax for Treatment of Hemoptysis.—Jacquelin believes that absolute rest, appropriate diet and medicinals are able to arrest hemoptysis in most tuberculous patients. Extract of the posterior pituitary lobe is valuable in the more rebellious cases. The extract should be injected subcutaneously or intravenously and the injections continued for a few days after the hemorrhage has stopped. The intravenous method, as suggested by Rist, is harmless if the extract is sufficiently diluted and is injected slowly. The forms of hemoptysis requiring artificial pneumothorax are extremely rare. Nine of the twelve patients on whom he performed the operation presented the fibrocaseous form of tuberculosis. At the first insufflation he gives an injection of pituitary extract, to which he sometimes adds morphine, in order to avoid hemorrhage due to the pulling of pleural adhesions on the lesion during the intervention. He generally uses up to 500 or 600 cc. of sterilized air for an insufflation. Where ulceration of a vessel is suspected, he gives a massive initial insufflation under a positive terminal pressure of 5, 8 or even 10 cc. of water. In all but one of his patients the artificial pneumothorax was followed by rapid arrest of the pulmonary bleeding, which had continued for days or weeks. This was associated with subsidence of fever and improvement in the general condition. In five cases the pneumothorax had to be discontinued on account of bilateral lesions or insufficient collapse of the lung.

Gastro-Intestinal Disturbances in the Course of Artificial Pneumothorax.—Braun reports seven cases in which gastro-intestinal disturbances were noted in the course of artificial pneumothorax. Among these disturbances were acute gastric and abdominal pains, vomiting and intestinal obstruction as well as dyspepsia and simple constipation. Usually it appeared that the insufflation had aroused or accentuated old gastro-intestinal symptoms. The disturbances were observed more frequently with a right pneumothorax. Pressure on abdominal organs, on the abdominal plexus, the mediastinal nerves or even on the esophagus, or immobilization of the diaphragm, may explain the phenomena.

Presse Médicale, Paris

34: 1041-1056 (Aug. 18) 1926

*Hyperglycemia with Skin Diseases. L. Hudelo and R. Kourilsky.—p. 1041.

Hyperglycemia with Skin Diseases.—Hudelo and Kourilsky found the sugar content of the blood to be above 1.1 Gm. in twenty-seven of thirty-six patients with various skin lesions. In all but one of the sixteen patients with eczema, it surpassed the normal limit of 1.1 Gm. It was high in the four patients with furunculosis, only one of whom had diabetes. High blood sugar was found in impetigo, intertrigo, psoriasis, lichen planus and in multiform erythema. As to the connection between the skin lesions and the hyperglycemia, the two may have a common cause in an infection; in the follicular lesions, as furuncle or anthrax, defective carbohydrate metabolism is probably a frequent factor; in eczema the hyperglycemia is but one of the features of multiple metabolic disturbances.

34: 1057-1072 (Aug. 21) 1926

*Method for Salicylate Therapy of Rheumatism. C. Caussade and A. Tardieu.—p. 1057.
*Antigen-Benzoin Test for Syphilis. R. Dujarric de la Rivière and N. Kossovitch.—p. 1059.
Visualization of the Gallbladder. A. Lomon and P. Laurent-Gérard.—p. 1060.
Porphyrinuria. J. Rouillard.—p. 1061.

Method of Administering Large Doses of Salicylate in Rheumatism.—In case of acute articular rheumatism, Caussade and Tardieu prescribe from 14 to 16 Gm. of sodium salicylate. The drug is mixed with 200 cc. of a decoction of couch-grass, anise or shave-grass, and is taken a little at a time, the whole within three or four hours. The treatment is renewed after three or four days, when only traces of the drug can be found in the urine. Elimination of all the salicylate seems to be complete in about ten days. Sodium bicarbonate is given simultaneously in syrup of orange, the dose being the same as or double that of the salicylate. The diet is exclusively vegetarian. They report three cases in which the treatment was applied. The favorable action on the fever and on the pain in the joints was manifest the next day. Definite subsidence of the rheumatic attack, as revealed by polyuria, bradycardia and subnormal temperature, occurred in from twelve to sixteen days. The treatment did not influence grave cardiac involvement. Large doses of salicylate should be used only in patients of the male sex and under 30 years of age.

Antigen-Benzoin Mixture for Flocculation Test for Syphilis.—Dujarric de la Rivière and Kossovitch mix one part of tincture of Sumatra benzoin with five parts of an alcoholic extract of calf heart. To this is added 1 cc. of fresh serum, which has been heated to 56 C. for thirty minutes immediately before the test. In positive cases the flocculation is distinctly visible with the naked eye. In nearly 4,000 cases the reaction was constantly negative with serum from nonsyphilitic persons. The results agreed with those of the Wassermann test in 96.5 per cent. The two tests may advantageously be used to supplement each other.

Schweizerische medizinische Wochenschrift, Basel

56: 753-776 (Aug. 7) 1926

*Skin Disease and Endocrine Disturbance. B. Bloch.—p. 753.
*Treatment of Infantilism. A. Oswald.—p. 756.
*Acute Encephalitis in Children. M. Stooss.—p. 758.
Carcinomatous Meningitis. E. Schlittler.—p. 763.
Elements Resembling Spirochetes Found in Blood in Epidemic Encephalitis. F. Wanner.—p. 767.
*Ether Treatment of Bronchitis. H. Koller-Aeby.—p. 769.

Relations Between Skin Disease and Endocrine Derangement.—Bloch reports a case with pathologic conditions in four great systems, skin, eyes, genital organs and nervous

system. The skin of the young woman showed a mixture of atrophy, pigmentation, depigmentation and telangiectasia. An operation for bilateral cataract had been done at the age of 5. There did not seem to be any trace of the ovaries, and the parasympathetic nervous system was hyperirritable.

Treatment of Infantilism.—Oswald reports a case which establishes anew the possibility of improvement in universal dystrophic infantilism under thyroid treatment, even when there are no decided signs of thyroid insufficiency. The girl, aged 7, had the aspect and mentality of a child of 3, but under treatment with thyroid extract she began to improve immeasurably almost at once. The success in this case suggests the wisdom of tentative thyroid treatment in all cases of universal dystrophic infantilism. It should be given a trial for three months at least.

Acute Encephalitis in Children.—Stooss describes eight cases of acute encephalitis in previously healthy children. The disease developed without preceding sickness, and there was nothing to suggest epidemic encephalitis or acute poliomyelitis. All the cases occurred in a limited area and within a short period of time. The clinical picture resembled that of Brown and Symmers' acute serous encephalitis. A "serous inflammation" might subside without leaving a trace, and the benign course in Stooss' cases favors such an assumption. In one of the children the clinical picture was limited to brief clonic muscular spasms—actual paramyoclonus multiplex, as described by Friedreich.

Ether in Treatment of Bronchitis.—Referring to Bier's recent advocacy of subcutaneous injection of ether in prevention and treatment of postoperative pneumonia and bronchitis, Koller-Aeby relates that he has been using ether systematically for years in treatment of bronchitis. He gives it with equal parts of turpentine, 10 drops of the mixture in water three times a day, after meals. He never tried it in tuberculosis, but often found it useful in chronic bronchitis with or without asthma.

Archivio Italiano di Chirurgia, Bologna

16: 133-260 (Aug.) 1926

*Fistulas Between Bladder and Intestine. G. Albano.—p. 133.
Congenital Cystic Lymphangioma of the Neck. L. Torchiana.—p. 173.
*Origin of Gastric and Duodenal Ulcer. D. Mucci.—p. 193.
Physical Behavior of Anesthetic Injected into Subarachnoid Space. A. Cernezzi.—p. 237.

Fistulas Between Bladder and Intestine.—Albano compares a personally observed case with 432 collected from the literature. The fistula healed spontaneously only in 1.79 per cent; under medical measures in 71.42 per cent, and after surgical treatment in 72.91 per cent. The fistula is generally minute when of inflammatory origin. Only 25 per cent of the total cases were in women.

Origin of Gastric and Duodenal Ulcers.—Mucci presents evidence to prove that a loss of balance between the vagus and sympathetic innervation of the digestive tract is responsible for the ulcer formation. This imbalance may be of emotional or toxic origin or both, but it develops only with a constitutional tendency to neurotic conditions in this region. The logical treatment, therefore, is to block or sever the nerves innervating it. He describes a number of cases to show the direct connection between the ulcer and emotional stress arresting the formation of the normal antiferments. He urges study of ulcer patients from this point of view.

Riforma Medica, Naples

42: 697-720 (July 26) 1926

*Serodiagnosis of Cancer. G. Izar.—p. 697.
*The Breast in Cirrhosis. R. Silvestrini.—p. 701.
Hemicolectomy in Constipation. U. Grimaldi.—p. 704.
*Anisocoria in Valvular Diseases. E. Mondolfo.—p. 716.
"Traumatic Hernia." G. Punzo.—p. 718.

Serodiagnosis of Cancer.—Izar reviews the subject with special regard to the miostagmin reaction and to his precipitin reaction. The former gives correct results in 70 to 90 per cent of cancer patients.

The Breast in Cirrhosis.—Silvestrini publishes two further cases of enlargement of the mammary glands in men suffering from cirrhosis of the liver. The apparent gynecomastia is due to a chronic inflammation with epithelial proliferation. It is probable that this is caused by a different composition of the stagnating blood of the collateral circulation: it contained in one of his patients much more (0.25 per cent) nonprotein nitrogen than the blood from the ulnar vein (0.055 per cent), although the quantities of urea and amino-acid nitrogen were only slightly higher. It also contained more fat, cholesterol and dextrose. Similar differences were found in other cirrhosis patients without enlargement of the breast.

Anisocoria in Valvular Diseases.—Mondolfo frequently found a widening of the left pupil in patients with mitral disease, especially with dilatation of the auricle. The observation cannot be made in strong light. The anisocoria is more pronounced in the early stage than later.

Medicina, Mexico City

7: 1-40 (July) 1926

Need for Reform in Teaching of Medicine and Surgery. Ocaranza.—p.1.
Spinal Cord Disease with Pernicious Anemia. W. López Albo.—p. 4. C'td.
The Physiologic Kidney. G. Argil.—p. 16.
The Volume of Blood as Factor in Arterial Tension. F. de P. Miranda.—p. 25.
Case of "Holo-Aortitis." T. Ortiz y Ramirez.—p. 29.
*Lactose as Vehicle for Arsenicals. C. Zuckermann.—p. 35.
Medical Study in Madrid. L. Salazar Viniegra. Supplement—pp. 1-6.

Arsenicals in a Lactose Solution Vehicle.—Zuckermann reports that since he has been using a saturated solution of lactose in which to dissolve neo-arsphenamine and sulpharsphenamine, he has had no untoward by-effects such as previously observed. He uses 1 cc. of the lactose solution with 0.15 Gm. of neo-arsphenamine; 2 cc. with 0.60, and 3 cc. with 0.75 and 0.90 Gm. He graduated the dose in his 250 cases according to the response to tests for albuminuria and urobilinuria.

Repertorio de Medicina y Cirugía, Bogota

17: 423-484 (May) 1926

*Acute Colitis in Children. C. Torres Umaña.—p. 428.
Criminal Abortion from Social Standpoint. Uribe Cualla.—p. 450.
*Mishaps with Neo-Arsphenamine and Malaria. C. Aguirre Plata.—p. 457.
Yellow Fever in 1923. D. Hernandez Bautista.—p. 463. C'tn.

Cause and Treatment of Acute Colitis.—In a recent epidemic of acute colitis in children at Bogota, Torres Umaña made bacteriologic examinations in more than 150. In twelve the Flexner dysentery bacillus was found; in three the Shiga type; in sixty, Welch's aerogenes capsulatus, and in fourteen streptococci. The mortality was 2 per cent, including the children not receiving treatment till late in the disease. No child over the age of 3 died. Examination of the stools from fifty normal children failed to reveal the Welch bacillus in any instance, while in almost every case of acute colitis in which this bacillus was demonstrated in the stools, it could be cultivated also from the milk the child had been getting. Antidysentery serum rendered good service, as also an autogenous vaccine in four cases of dysenteriform colitis (streptococci and colon bacilli). Moist heat and opium are the best means to combat intestinal colic; hydrotherapy aids in this and likewise soothes the nervous system and has a diuretic and detoxicating action. Vomiting is generally due to a secondary acidosis; this can be combated by injection of isotonic solution of dextrose, with or without belladonna or atropine as indicated. The most important thing, however, is to regulate the diet, proscribing animal protein absolutely; the main reliance is on vegetable broths, with 6 or 7 per cent lactose or saccharose; if necessary, sulphate of magnesium or of sodium. Calomel seemed to display a more favorable action than other drugs when the Welch bacillus was found in the stools and the kidneys were in good condition. The antidysentery serum proved effectual in certain cases applied in lavage of the bowel alone, rendering injection superfluous. Bogota enjoys an exceptional climate but the death rate among children is high, mainly on account of the bad quality of the milk.

Neo-Arsphenamine in Malaria.—Aguirre Plata reiterates that neo-arsphenamine has no advantages over quinine in

treatment of malaria, while there is danger of serious by-effects. The cases in which it has apparently proved superior were in reality cases of syphilis, relapsing fever, spirillosis, etc. The arsenicals should be reserved for exceptional cases.

Revista Médica Cubana, Havana

37: 703-822 (July) 1926

*Pellagra in Cuba. V. Pardo Castelló and J. J. Mestre.—p. 703.
Heredity from Standpoint of Embryology and Sociology. J. Portell y Vilá.—p. 714.
Mercurochrome in Treatment of Inguinal Adenitis. I. Angulo y Alvarez.—p. 725.

Pellagra in Cuba.—Pardo Castelló and Mestre remark that pellagra has been observed occasionally and sporadically in Cuba, and probably other cases have escaped recognition. In the last three or four years the number seems to have increased, especially in spring and summer. In their own experience with eight cases, some were extremely severe. No treatment proved effectual in the advanced stages. There are said to be several cases among the inmates of the asylums.

Revista de Medicina y Cirugía, Caracas

9: 75-96 (May) 1926

Case of Juxta-Articular Nodules. B. Perdomo Hurtado and M. Ferrer Viera.—p. 75.
True Infantilism in Man Aged 30. D. R. Iriarte.—p. 80.
Some Ophthalmologic Observations. J. Rhode.—p. 82.
*Bismuth in Treatment of Yaws. D. Mendoza.—p. 92.

Bismuth in Treatment of Frambesia.—Mendoza relates that frambesia is endemic and very contagious in certain parts of Venezuela, attacking children predominantly, mostly at the age between 8 and 14. The secondary eruption may last for up to eight years. Tertiary lesions are relatively rare. He has never observed paranasal tumors. In his experience with bismuth in more than 200 cases, it displayed specific efficacy, beneficial effects were more rapid than with arsphenamine. A combination of bismuth with the Castellani mixture of iodide and antimony and potassium tartrate seemed to hasten recovery in the cases in which it was tried.

Semana Médica, Buenos Aires

2: 53-116 (July 8) 1926

*Conjugal and Familial Cardiovascular Syphilis. R. A. Bullrich.—p. 53.
Pelvic Sympathectomy. C. F. Rophille.—p. 55.
*Is There an "Ayerza's Disease?" J. R. Goyena.—p. 59.
Acute Occlusion of the Intestine. M. Ruiz Moreno.—p. 62. C'cn, p. 228.
Excessive Functioning of the Pituitary in Pregnancy. J. Bazán.—p. 80.
The Refractometric Index in Pediatric Clinic. J. M. Macera.—p. 81.
Cauterization of Pleural Adhesions in Artificial Pneumothorax. F. A. Arce.—p. 101.

Conjugal and Familial Syphilitic Disease of the Circulatory Apparatus.—Bullrich reports four instances of cardiovascular syphilis in married couples. Both man and wife had hypertension and arteriosclerosis in one case; both had a tendency to aneurysm in another; both had hypertension in another, and in the fourth case both had heart disease. In another family with signs of neurosyphilis, two brothers had cardiovascular disease; another brother had extreme enlargement of the heart, tachycardia and hypertension, while a sister had pronounced arteriosclerosis.

The "Black Cardiacs."—Goyena declares that the secondary sclerosis of the pulmonary artery described by Ayerza in 1901 had been described in 1865 by Gouraud and by Peter before him. There is no reason to call it "Ayerza's disease" except that Ayerza coined the name for it of "black cardiacs." Of all the clinical pictures described as "Ayerza's disease," the only one that has a claim to originality is Escudero's, if he can prove his assertions.

2: 181-244 (July 22) 1926

The Asistencia Pública of Buenos Aires. A. Chueco.—p. 182.
Idem in the Fight Against Tuberculosis. Raimondi.—p. 186.
Idem in Child Welfare Work. Bordot and Bortagaray.—p. 191.
Idem from Social Standpoint. L. M. Iglesias.—p. 194.
Idem in Repression of Venereal Disease, Lepra and Rabies. J. J. Puente.—p. 197.
Idem in Care of the Mouth. A. Zabotinsky.—p. 201.
*Sanocrysin Eruption. C. Mainini and A. Alvarez.—p. 204.
Present Status of Tuberculous Bone and Joint Disease. C. Robertson Lavalle.—p. 210.
Case of Ayerza's Disease. T. Martini and C. A. Gourdy.—p. 213.
The Fight Against Venereal Disease. Clusellas.—p. 224.
*Blood Pressure in Capillaries in the Retina. E. Lida and E. Adrogué.—p. 225.
Phlebotomus Araozi, n. sp. G. Paterson and R. C. Shannon.—p. 236.
Rôle of Water in Acid-Base Balance of Blood. Solano Ramos.—p. 239.

Sanocrysin Eruption.—Mainini and Alvarez are convinced that the eruption and itching in the two cases described were manifestations of the toxic action of the metal salt on the sympathetic system. The injury of the nerve may be serious; in one of the cases reported the vasodilatation still persists, long after the subsidence of the acute phase of the erythrodermia.

The Blood Pressure in the Capillaries of the Retina.—Lida and Adrogué found the intra-ocular tension when the blood corpuscles were moving only during systoles, about 38 to 41 mm. of mercury, and 69 to 71 when the circulation was completely arrested. The natural tension is 40, which is higher than the tension in the capillaries of the finger, 22 (Danzer and Hooker), 7 to 9 (Basler), 10 (Hill and McQueen). The initial intra-ocular tension was 21 to 22; that of the femoral artery 75 to 130, and of the arteria centralis of the retina 41 to 47. Allowing for Schiøtz' underestimation by 5 or 10 mm., the intra-ocular tension may reach 30 mm. and the diastolic pressure in the arteria centralis of the retina, 40 or 50.

Archiv für Dermatologie und Syphilis, Berlin

150: 375-592 (July 1) 1926. Partial Index

Cutis Rhomboidalis Nuchae. F. Piorkowski.—p. 375.
Partial Albinism and Nevus. Meirowsky and Spickernagel.—p. 384.
*Dermatosis and Ascaridiasis. A. Cederberg.—p. 393.
*Arsphenamine Therapy. H. Th. Schreus.—p. 402.
*Syphilis and Acute Yellow Atrophy of the Liver. A. Neddermeyer.—p. 423.
Skin Changes in Pulmonary Tuberculosis. A. Jordan.—p. 451.
*Detoxicated Arsphenamine. E. S. Heronimus.—p. 459.
Atrophy of Pituitary in Skin Atrophy. L. Wertheim.—p. 464.
*Action of Amidopyrine on Genitals. F. Lasch and A. Perutz.—p. 474.
*Itching and Eczema. S. Rothman.—p. 489.
*Hypersensitiveness and Hyposensitiveness. R. Doerr.—p. 509.
Neuropathic Type of Eczema. E. Brill.—p. 529.

Dermatosis, Resembling Hebra's Prurigo, Due to Ascaridiasis and Its Blood Picture.—In addition to a case of urticaria due to intestinal worms Cederberg reports a case, in which an ascaris toxicosis caused a dermatosis, which clinically closely resembled Hebra's prurigo. The blood count showed a large increase of eosinophils during the toxemia and a posttoxic lymphocytosis when the toxic symptoms had disappeared. It is possible that both helminths and autointoxication can produce other dermatoses. The mechanism of helminth toxemia and of autointoxication is probably anaphylactic.

Principles and Experimental Studies in Arsphenamine Therapy.—Schreus injected vital dyes or arsphenamine compounds subcutaneously or intravenously into experimental animals (mice and rabbits) and studied the relations between the concentration of doses and the distribution in the body. The main thing in improving the action of arsphenamine is to attain a saturation of the body. By breaking up the dose it is possible to obtain this at the same time that the arsphenamine concentration of the blood is kept low. The results of his clinical studies, comprising seventy-three cases, show that regularity and sufficient number of arsphenamine injections, at least ten, in combination with mercury or bismuth is of the greatest importance. Improvement in arsphenamine treatment can be made by increasing the size of the single doses, by prolonging the treatment or by combining arsphenamine with substances acting as vehicles.

Relations of Syphilis and Arsphenamine to Acute Yellow Atrophy of the Liver.—Neddermeyer presents eight fatal cases with the clinical diagnosis of acute yellow atrophy of the liver, with simultaneous syphilis in six cases. He indicates that the atrophy of the liver did not depend upon arsenic poisoning due to the arsphenamine treatment. The explanation is a specific toxic effect of the syphilitic infection on the liver cells, without a direct action of the spirochetes.

Sterilizing Action of Arsphenamine, Detoxicated by Serum.—In experiments on twenty-nine mice inoculated with Dutton's spirochetes Heronimus found that arsphenamine, detoxicated by serum in vitro, did not lose its sterilizing power. In 86 per cent a complete sterilization was obtained. The detoxicated substance had the same effect as arsphenamine dissolved in water or physiologic sodium chloride solution.

Pharmacologic Studies on the Effect of Amidopyrine on Genitals.—Lasch and Perutz studied the effect of amidopyrine on the uterus and spermatic cord of rats and guinea-pigs. They found that the drug decreased the tonus and had a quieting effect on the organs. They conclude that the clinical effect of amidopyrine on the smooth musculature of the genital tract is not only central but also peripheral.

Itching in Eczema.—Sensitivity tests made by Rothman on eczematous skin showed hyperalgesia, increased itching sensation and a strong tendency for the pain and itching to extend in time and space. The eczematous changes in skin do not cause itching but rather an exaggerated tendency to react by itching to otherwise negligible stimuli. Sympathetic nerves do not, so far as we know, participate in the origin of pruritus.

Hypersensitiveness and Hyposensitiveness in Allergy.—Doerr shows that the toxic effect produced by injection of actinocongestin in the dog is due, not to the toxicity of the substance, but to the neutralization processes in the body. Hypersensitiveness is to be understood as an antigen-antibody reaction, which represents the real agent in cell destruction. Hyposensitiveness is debilitated reactivity against a certain agent. He suggests that the term hypersensitiveness should be replaced by "cytotoxic allergy."

Archiv für exp. Pathologie und Pharmak., Leipzig

115: 1-258 (Aug.) 1926. Dedicated to Minkowski. Partial Index

Lactic Acid in the Stomach. R. Ehrmann.—p. 45.
*Artificial Syphilitic Blood Changes. F. Heimann.—p. 64.
*Insulin Fattening. A. Lublin.—p. 101.
*Means to Influence Flow of Bile. R. Meissner.—p. 117.
Volume of Protein Bodies in Serum. A. Nitschke.—p. 134.
*Nuclein Metabolism and Gout. J. Severin.—p. 205.
Cholesterol in Bile and Blood. R. Stern and G. Suchantke.—p. 221.
Carbohydrate Metabolism in the Kidneys. A. Welz.—p. 232.

Artificial Production in the Blood of the Changes Characteristic of Syphilis.—Heimann has confirmed that rabbits previously treated with aqueous extracts of syphilitic livers produced lipoid antibodies, and gave a positive Wassermann reaction. The response was positive also to the Sachs-Georgi and the Meinicke tests. Alcoholic liver extracts did not produce lipoid antibodies except after addition of pig serum or extract of normal liver. This mixture represents a strong immunizing antigen. The protein elements of the spirochetes in organ extracts are not necessary for the immunizing process, and can be substituted by certain other substances.

Effect of Insulin on Carbohydrate Utilization in the Nondiabetic.—Lubin shows that insulin seems to have a tendency to promote the formation of fat from carbohydrates. The possibility of fattening by forced feeding under the influence of insulin, according to Falta, is confirmed.

Measures to Influence the Flow of Bile.—Meissner demonstrates a gallbladder fistula procedure for studying in dogs the effects of substances influencing the flow of bile. He found that combinations, especially of salicylic acid with the sodium salt of cinnamic acid, and benzoic acid with theobromine sodium salicylate, increased the excretion of bile more than uncombined compounds. Some of the experiments were checked clinically. The method can be used for study of substances like tannin tannoform and cod liver oil which are supposed to inhibit formation of bile. The pharmacologic conclusions might prove useful in treatment of jaundice.

Pathologic Metabolism in Gout.—Severin explains gouty arthritis as the result of changes in the fermentative decomposition of nuclein, resulting in formation of free uric acid. In normal conditions, the uric acid is present in the blood in the form of nucleotid or nucleosid compounds. The kidneys experience difficulty in excreting free uric acid.

Beiträge zur klinischen Chirurgie, Berlin

137: 1-186, 1926

A Sequel of Appendectomy. R. J. Harrenstein.—p. 1.
Phlebitis Migrans. B. Herzberg.—p. 29.
*Gallstones and Cancer of Gallbladder. F. A. Lentze.—p. 38.
Regeneration of Bone. H. Burckhardt.—p. 63.
Coxa Valga from Displacement of Epiphysis. W. Müller.—p. 148.
Movable Extension Splint. C. Hempel.—p. 165.
Diagnosis and Therapy of Swine Erysipelas Arthritis. F. Barth.—p. 170.
*Closure of Hernial Aperture by the Uterus. F. C. Hilgenberg.—p. 173.
"Hereditary Tendency to Struma Nodosa Colloides." B. Aschner.—p. 179. Reply. K. H. Bauer.—p. 181.

Gallstones and Cancer of Gallbladder.—Lentze's statistics of 557 cases of gallstones show cancer of the gallbladder in 5.1 per cent of women over thirty-nine years of age suffering from gallstones. For both sexes taken together the percentage was 4.3. The cholelithiasis was in all probability the primary condition.

Plastic Closure of the Hernial Aperture with the Uterus.—Hilgenberg describes three cases where the uterus was used to close the hernial aperture. In two cases the women were in the menopause. The third patient had undergone roentgen-ray castration on account of hemorrhage. Good results were obtained in the first two. The third case was too recent to judge. The method cannot be used on women before the menopause without previous sterilization.

Deutsche medizinische Wochenschrift, Berlin

52: 1283-1324 (July 30) 1926

*Pathogenesis of Cancer. F. Blumenthal.—p. 1283.
Female Sex Hormones. S. Loewe and F. Lange.—p. 1286.
Encephalography in Children. H. Koeppe.—p. 1289.
*Cholecystography. B. O. Pribram.—p. 1291.
*Gas Metabolism and Glycemia. W. Arnoldi and M. Schechter.—p. 1292.
*Orthostatic Retention of Water. Seyderhelm and E. Goldberg.—p. 1294.
*Dick Test and Immunization. B. Johan.—p. 1296.
*Wassermann Reaction After Bile Injections. D. Kirschenblatt and A. Narinjan.—p. 1298. Addendum. F. Klopstock.—p. 1298.
*Insulin Sensitiveness and Suprarenals. Unverricht.—p. 1298.
Pernicious Anemia and Gas Poisoning. C. Klieneberger.—p. 1299.
*Coffee, Alcohol and Scurvy. F. V. v. Hahn.—p. 1300.
Dietotherapy of Tuberculosis. E. Bettmann.—p. 1301.
*Vaccine Virus from Second Day. E. Paschen.—p. 1301.
Blood Picture After Autohemotherapy. L. Hirsch.—p. 1302.
Measles Serum from Animals. W. Schmidt.—p. 1303.
Treatment of Furunculosis. S. Levy.—p. 1303.
Gonorrhea Without Urethritis. A. Cohn.—p. 1304.
Stain for Diphtheria Bacilli. Stoltenberg.—p. 1304.
Blood Diseases in Children. E. Stettner.—p. 1304.
German Population Statistics. Prinzing.—p. 1306.
*References in Medical Literature. I. Boas.—p. 1307.
Treatment in Health Resorts. E. Tobias.—p. 1309.

Pathogenesis of Cancer.—Blumenthal reviews recent papers on the pathogenesis of cancer and relates his success in producing cancer in some animals by injection of lymph from cancer patients.

Cholecystography.—Pribram tried di-iodocinchophen internally in preparation of the patient for cholecystography.

Gastric Secretion, Gas Metabolism and Epinephrine Glycemia.—Arnoldi and Schechter determined the oxygen intake after administration of Ehrmann's test meal consisting of 15 cc. alcohol, 15 Gm. sugar and 285 Gm. water (170 calories). The oxygen consumption decreased in patients with hyperacidity and in some healthy subjects. It increased in hypacidity and anacidity, except in patients with cancer of the stomach. The latter reacted with a decrease. Pernicious anemia gave no constant results. The hyperglycemia following epinephrine injection was low in hyperacidity (similar to diabetes) and exaggerated in hypacidity—except in cancer. In hypacidity injection of insulin at first causes hyperglycemia.

Orthostatic Retention of Water.—Seyderhelm and Goldberg confirm the regular renal and extrarenal retention of water in the upright position. It is especially pronounced with salt water. A healthy subject retains more than one half of a liter of a 0.6 per cent solution during the next four hours. This cannot be irrelevant in therapeutic administration of mineral waters. They advise testing the elimination in the horizontal and upright positions before beginning such treatment.

Dick Test and Immunization.—Johan directed the systematic examination of about 12,000 children. He had pseudoreactions

in 5.3 per cent of them, but does not consider this sufficient ground for advocating the routine control test with heated toxin.

Wassermann Reaction After Complement Fixation.—Kirschenblatt and Narinjan found no positive Wassermann reaction after milk injections in man. Klopstock adds, that serum from rabbits injected with milk reacts with extracts from syphilitic human liver and beef heart, unless cholesterol is added.

Insulin Sensitiveness and Suprarenals.—Unverricht was treating a diabetic and tuberculous patient with insulin. The patient began to react with the hypoglycemic complex to even small doses of insulin. Symptoms of Addison's disease developed soon afterward and the patient's sensitiveness to insulin increased further.

Coffee, Alcohol and Scurvy.—Von Hahn believes that the vitamin C is not a substance, but a condition of the food characterized by high surface activity. All the substances known to have a high vitamin C content are strongly active. He concludes that vitamin-free condiments with high surface activity, such as coffee or alcohol, should prevent scurvy. He reports the history of a patient who had lived for three and a half years exclusively on bread, meat and canned food. He developed scurvy three days after he was forced by the absence of his housekeeper to give up his strong coffee. Another patient lived for twenty years on a "vitamin-free" diet, corrected by considerable amounts of beer and kümmel or brandy. He developed scurvy after a few day's abstinence due to influenza and cured it by alcohol. Another temperance period of a few days, ordered by the physician and enforced by the wife, resulted again in scurvy. He recalls the empiric use of liquor in prevention of scurvy on sailing boats in olden times.

Vaccine Virus from Second Day.—Paschen recommends vaccination with a diluted emulsion from the calf's eruption made on the second day after inoculation. The vaccine is clean, clear and very strong.

References in Literature.—Boas recommends that one think for whom the paper is intended. A practitioner does not care about authors. Scientific papers should contain exact references. He is unable to remember quite a few of the opinions attributed to him by various authors who did not—and probably could not—quote where he wrote the respective opinion. Enormous bibliographic compilations in large monographs, repeated to a large extent in other books on similar subjects, increase their price. It would be a great advantage if it were possible to secure cooperation in publishing regularly special bibliographies, to which the authors could simply refer.

Frankfurter Zeitschrift für Pathologie, Munich

34: 1-143, 1926. Partial Index

*The Capillaries. J. Tannenberg.—p. 1.
Lipomas of the Uterus. H. Dworzak.—p. 20.
*Fatty Degeneration of the Liver. O. Macchiarulo.—p. 37.
Chronic Blocking of the Portal Vein. H. Gross.—p. 71.
*Congenital Hydronephrosis. H. von Bünau.—p. 98.
Mixed Kidney Tumors. N. Sysak and N. Jurkewytsch.—p. 136.

Structure and Function of the Blood Capillaries.—Tannenberg studied microscopically the capillaries in the mesentery of living rabbits and frogs. With vital staining, using trypan blue, and heat and cold stimuli, he demonstrated the active contraction of the capillaries, which is of importance in the distribution of the blood.

Experimental Observations on Lipoid Fatty Degeneration of the Liver.—Macchiarulo advocates a method for study of the causes of fat and lipoid deposition in the liver. He poisoned rabbits with chloroform, feeding them simultaneously with cholesterol, and obtained better results than when using one alone.

Genesis of Congenital Hydronephrosis. — Von Bünau describes a case of congenital hydronephrosis of the pelvis of the left kidney in a new-born infant who presented several malformations and died shortly after delivery. He agrees with Kermauner that congenital hydronephrosis does not depend on blocking of the ureters, but is due to primary abnormal proliferation of ureter cells and imperfect development of kidney tissue. The fluid present is not produced by the kidneys, but by the total hypertrophic mucous membrane.

Klinische Wochenschrift, Berlin

5: 1401-1448 (July 30) 1926

Dementia. U. Fleck.—p. 1401.
*Dystrophy of Muscles and Extrapyramidal Syndrome. A. Westphal.—p. 1404.
*Blood in High Altitudes. A. Lippmann.—p. 1406.
Measles Serum. B. de Rudder.—p. 1406.
*Endocarditis Lenta. W. Lehmann.—p. 1408.
*Serodiagnosis of Tuberculosis. F. Klopstock and H. Köster.—p. 1415.
Progressive Staphylomycosis. T. Benedek.—p. 1416.
Paralysis After Hydrophobia Vaccination. H. Lubinski.—p. 1419.
Erythrocytes in Pregnancy. G. H. Schneider.—p. 1422.
Nipple Reflex. C. v. Bramann.—p. 1426.
Tuberculosis of Guinea-Pigs. L. Karczag.—p. 1427.
"Germanium Dioxide." F. S. Hammett.—p. 1427.
Reply. W. Keil.—p. 1428.
*Extracardiac Action of Digitalis. O. Leibowitz.—p. 1428.
Insulin and Blood Pressure. L. Hahn.—p. 1429.
Hypertrophy of Hair After Roentgen Irradiation. K. Breitländer and H. Felke.—p. 1429.
Drugs in Pulmonary Tuberculosis. Unverricht.—p. 1430.
Success of Children's Recuperation Homes. Ickert.—p. 1431.
Causal Treatment of Enuresis. A. Narath.—p. 1446.

Dystrophy of Muscles and Extrapyramidal Syndrome.—Westphal's patient, suffering from progressive muscular dystrophy, developed choreiform contractions. They were strictly limited to the muscles affected by the dystrophy.

Blood in High Altitudes.—Lippmann found in young men living at Davos (altitude 1,550 m.) 20 per cent more hemoglobin and erythrocytes than in people from the German lowlands. The blood volume (congo red method) was also higher (between 7.4 and 10.1 per cent of body weight).

Endocarditis Lenta.—Lehmann concludes that the chronic infectious endocarditis designated as "lenta" is due to *Streptococcus viridans* only. Culture from the blood or urine succeeds practically always in the febrile stages.

Serodiagnosis of Tuberculosis.—Klopstock and Köster had almost identical results in complement fixation tests when using Wassermann's antigen prepared from tubercle bacilli and treated with lecithin or when using a colloidal solution of a protein from tubercle bacilli. When the latter substance was simply suspended in physiologic solution of sodium chloride, the antigenic property disappeared. Addition of lecithin restored it.

Extracardiac Action of Digitalis.—Leibowitz observed hyperglycemia, glycosuria and acetonuria during digitalis treatment in a patient with auricular fibrillation. The patient had later a low blood sugar. Digitalis administered during compensation of the heart disease raised the blood sugar, but did not cause a glycosuria.

Medizinische Klinik, Berlin

22: 1171-1208 (July 30) 1926

Treatment of Alveolar Pyorrhea. R. Neumann.—p. 1171.
*Cholecystography. T. Brugsch and H. Horsters.—p. 1174.
Pneumococcus Peritonitis. E. Melchior.—p. 1176.
*Treatment of Scleroderma. F. Herzog.—p. 1178.
Chronic Fibrinous Bronchitis. H. Engel.—p. 1179.
Degkwitz' Measles Serum. A. Reuter.—p. 1181.
Constitutional Therapy. F. Turan.—p. 1182. C'td.
Duodenal Lavage in Cholelithiasis. A. Sucher.—p. 1185.
Congenital Myxedema. E. Hoffstaedt.—p. 1186.
Hematoma of Suprarenal in Nephritis. B. A. Photakis.—p. 1187.
Early Diagnosis of Appendicitis. K. Rapp.—p. 1187.
Gastro-Intestinal Neurofibromatosis. G. Golm and E. Christeller.—p. 1188.
Curved Laminaria. W. Niderehe.—p. 1192.
Occupational Injury and Pernicious Anemia. v. Schnizer.—p. 1193.
Bismuth Treatment of Syphilis. J. Urbach.—p. 1194.
Physical Culture. Huntemüller.—p. 1206.
Tuberculosis of the Nose. W. Stupka. Supplement.—p. 1.
Tonsillectomy and Tuberculosis. J. Weleminsky. Ibid.—p. 12.
Phototherapy of Laryngeal Tuberculosis. A. I. Cemach. Ibid.—p. 13.
Cellular Resistance to Tuberculosis. F. Breinl. Ibid.—p. 19.

Cholecystography.—Contrary to other authors, Brugsch and Horsters are convinced that injection of pituitary extract causes relaxation of the gallbladder and contraction of Oddi's sphincter. This so-called sphincter is only a part of the musculature of the duodenum. They administer by mouth capsules containing a mixture of tetraiodophenolphthalein with

trioxycholanic acid. The latter is added to promote resorption of the dye. Besides its use in cholecystography, the preparation gives good pictures of the liver itself. A diseased liver does not accept the dye.

Treatment of Scleroderma.—Herzog had favorable results with intravenous injections of a hypertonic solution of sodium chloride in intermittent claudication. He now reports improvement in patients suffering from scleroderma. He injected 10 cc. of a 10 per cent solution daily. If this was impossible, he advised daily enemas of 300-500 cc. of a 1 per cent solution.

Wiener klinische Wochenschrift, Vienna

39: 881-908 (July 29) 1926

Roentgen Examination of Stomach. K. Hitzenberger.—p. 881.
*Experiments with Tonsils. V. Russ and E. Suchanek.—p. 883.
Protein Treatment and the Sympathetic. J. v. Lukács.—p. 885.
*Drugs and Blood Picture. F. Donath and A. Perlstein.—p. 888.
Focus of Mites. K. Toldt, Jr.—p. 890.
Acute Nephritis. P. Saxl.—p. 895.
Cholelithiasis. D. Adlersberg.—p. 896.
Tuberculosis of Lymph Nodes, Tendons and Bursae. V. Russ. Supplement.—pp. 1-16.

Experiments with Tonsils.—Russ and Suchanek injected fresh extracts from human tonsils and adenoids into rabbits. A comparatively small dose was lethal. Sublethal doses caused leukopenia and thrombopenia lasting several hours. Extracts from other organs, including lymph nodes, induced considerable leukocytosis. Only placenta extracts resembled to a certain extent those from tonsils.

Drugs and Blood Picture.—Donath and Perlstein injected neo-arsphenamine, acriflavine and scarlet R into healthy men and rabbits. All three drugs caused monocytosis, which was especially pronounced after twenty-four to forty-eight hours. It was more striking in subjects who had a low monocyte percentage before the injections.

Zentralblatt für Chirurgie, Leipzig

53: 1873-1936 (July 24) 1926

*Prepyloric Resection in Duodenal Ulcer. R. Wilmanns.—p. 1874.
*Ileus Verminosus (Oxyuris). J. P. Dmitrieff.—p. 1876.
Reconstruction of the Common Bile Duct. B. Brandsburg.—p. 1877.
Morestin's Operation for Contractions from Burns. H. Stegemann.—p. 1880.
Secondary Hemorrhage After Gastro-Enterostomy. G. Wolfsohn.—p. 1885.
Mobilization in Joint Affections. V. Riemke.—p. 1887.
*A Danger in Radium Irradiation of the Esophagus. S. Frey.—p. 1890.
*Wrong Indications in Inguinal Hernia. E. Feldmann.—p. 1892.

Prepyloric Resection in Duodenal Ulcer.—For the last two and a half years Wilmanns has performed prepyloric resection in duodenal ulcer in cases where a duodenal resection would have led into difficulties. Thirty-seven patients were treated in this way with good results. One died; of the thirty who replied to inquiries, twenty-six are symptom-free. During the same period eighty-five duodenal resections were performed for duodenal ulcer.

Ileus Caused by the Oxyuris.—Dmitrieff reports a case of intestinal obstruction as a result of the oxyuris. He has found no similar case in the literature. Laparotomy showed a large, partly perforated ulcerous area in the colon, infested by the oxyuris. The ulcer was excised, resection being continued into healthy tissue. The excised tissue contained a bloody mass filled with oxyurids. The mucous membrane of the ulcerous tissue was scarcely changed. The appendix was normal, but filled with oxyurids. The ileus was probably spastic in nature.

Radium Free in the Gastro-Intestinal Tract.—Frey describes two cases in which, during application of radium to cancer of the esophagus, the two halves of the radium container became unscrewed and a 30 mg. tube of radium went free into the gastro-intestinal tract. Operation was without result in the first case and was not attempted in the second. With the aid of purgatives and bulky food the radium tube passed out of the body in the natural way after seventy-two hours in the first case, twenty-four hours in the second. No damage to the gastro-intestinal tract was found at necropsy on the first patient, who died of bronchopneumonia eight days after the operation. The second patient was examined two months after the accident; the sojourn of the radium in the stomach and intestines appeared to have left no trace, Frey describes an improved radium holder, designed to obviate the danger illustrated by these cases.

Wrong Indications in Inguinal Hernia.—Inguinal hernia in older men may be a symptom of increase of abdominal pressure from cancer of the large intestine, as Feldmann found in one of his cases. Other causes may be hypertrophy of the prostate, stricture of a ureter or chronic bronchitis with continuous coughing. In infants phimosis or whooping cough is often the origin of inguinal hernia. It is useless to operate on the hernia while the cause remains.

53: 2001-2064 (Aug. 7) 1926

Tetanic Reaction After Goiter Operations. E. Melchior and M. Nothmann.—p. 2002.
Hypersensitiveness to Chloramine. P. Kuhr.—p. 2004.
Technic for Continent Artificial Anus. A. N. Krugloff.—p. 2005.
*Antethoracic Artificial Esophagus. W. R. Braizew.—p. 2010.
*Artificial Ureter. A. Váňa.—p. 2016.
"Secondary Hemorrhage After Gastro-Enterostomy." J. Jungbluth.—p. 2019.
"Indications for Förster's Operation." O. Orth.—p. 2020.

Antethoracic Artificial Esophagus.—Braizew was able to complete a dermato-esophagoplasty on a girl, aged 12, after eight months of major and minor operations. His technic differs from the previously described methods in the fact that a new opening was made in the stomach. This allowed the temporary use of the first gastrotomy to supply ample nourishment. The new opening was prolonged in the shape of a cone and surrounded with a loop from the rectus muscle, thus forming a sphincter. The function of the new esophagus has been satisfactory. The patient has been able to eat any kind of food and has gained thirty-two pounds.

Artificial Ureter.—To study the conditions when a new ureter is made from a loop of the small intestine, Váňa replaced the right ureter by a part of the lower ileum in operations on five dogs. One of the experimental animals died, the others recovered in two weeks. The sound left kidney was removed after one month, and it was found that the artificial ureter functioned well. One dog was killed the fourth month but no signs of inflammation were discovered. He concludes that the small intestine can be used in replacement of an injured ureter, in which case it would be unnecessary to sacrifice a healthy kidney; also, when lumbar ureterostomy is impossible.

53: 2065-2128 (Aug. 14) 1926

Biology of Pus Cells and Chemotherapy. H. Köhler.—p. 2066.
*Biology of Pus Cells. P. Rosenstein.—p. 2070.
Subperiosteal Fracture of the Radius. A. Schlesinger.—p. 2073.
Technic of Gastrostomy. E. Crone-Münzebrock.—p. 2075.
Operations for Fistula of the Throat. W. Gross.—p. 2076.
Improving the Odor of Ethylchloride. H. Schloessmann.—p. 2081.
*Pseudotumors, Pseudometeorism. A. Ladwig.—p. 2083.

Biology of Pus Cells.—Rosenstein claims that the staining of leukocytes by Seyderhelm's method is of great clinical importance in prognosis not only in cases handled chemotherapeutically, but also in those treated surgically.

Pseudotumors, Pseudometeorism of Abdominal Cavity.—Ladwig presents two cases where meteorism was taken for abdominal tumor. The first case was due to aerophagy, the other, a pseudometeorism, depended upon a contraction of the diaphragm. Both cases were cured by psychotherapy.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 745-828 (Aug. 14) 1926

*Carbon Tetrachloride Poisoning. Kehrer and Oudendal.—p. 746.
*Smallpox or Chickenpox? D. J. Hulshoff Pol.—p. 758.
Experimental Research on Consequences of Obstruction of Lumen of the Appendix. B. Finaly.—p. 766.
Wire in Plaster Dressing to Aid in Removal. Winters.—p. 771.

Fatal Carbon Tetrachloride Poisoning.—Kehrer and Oudendal relate that they had given this drug in 9,000 cases of hookworm disease without a serious mishap but since May, 1924, they have had five fatalities in the course of 6,000 treatments. Necropsy revealed fatty degeneration of internal organs, the changes most severe in the liver. In the first four the interval between the doses had been too short, but in the fifth case there had been a delay of a month. A colored plate shows the microscopic picture in four of the cases. The hookworm may have

injured the intestines, opening pathways for absorption of the drug; another possible factor is the tendency to tropical cirrhosis of the liver; abuse of alcohol may also have contributed to the predisposition. The dose was 5 cc. of the tetrachloride and 1.5 cc. of oil of chenopodium. They add that their experience teaches the wisdom of beginning with small doses when the hookworm infestation is especially severe.

Differentiation of Smallpox and Chickenpox.—Hulshoff Pol warns that the distribution of smallpox is in declining sequence on the face, hand, back, chest and abdomen and centrifugal on the limbs. The principal differential feature, however, is that the vesicles are all of the same age and crop, while in chickenpox new ones sprout beside the older lesions. The umbilication of the vesicles in smallpox is decisive.

Acta Chirurgica Scandinavica, Stockholm

60: 291-487, 1926

*Pneumatocephalus. A. Krogius.—p. 291.
Anomalies, Deformities and Diseases of Vertebrae. R. Hanson.—p. 309.
Aseptic Necrosis of Bone. G. Axhausen.—p. 369.
*Appendicitis in Childhood. E. Edberg.—p. 397.
*Injection Treatment of Varicose Veins. V. Meisen.—p. 435.
Velter's Decompressive Trephining. A. Jirásek.—p. 463.
Diagnosis of Tumor in Spinal Canal. E. Brattström.—p. 473.

Air in Lateral Ventricles of Brain as Complication of Fracture of Base of Skull.—Krogius describes a case of air in the dilated lateral ventricles as a consequence of a severe trauma of the forehead. Death took place on the third day after the operation. Postmortem examination revealed a focus of softening in the base of the frontal lobe, communicating with both lateral ventricles. The anterior parts of these were greatly distended and filled with air and purulent fluid. In addition to twenty cases of intracerebral or extracerebral pneumatocele, Krogius has found records of only eight cases of pneumatocephalus in the literature.

Appendicitis in Childhood.—Edberg reviews 754 cases operated on for appendicitis among children in Stockholm and Gothenburg during the period 1914-1923; thirty-eight cases—5 per cent—were fatal. In more than 50 per cent of the chronic cases the operation did not explain the clinical symptoms. Of the whole material, 1.2 per cent were cases of intestinal tuberculosis in the form of tuberculous lymphadenitis. Oxyuris is rarely encountered with destructive appendicitis. In 20 per cent of the fifty oxyuris cases the clinical picture testified to acute peritonitis. There was no death in the 164 cases of destructive appendicitis. There were four deaths in the 167 cases with localized peritonitis and thirty-three deaths among the 125 with diffuse peritonitis. He points out that the cecum in infants has a greater mobility than in older children. The lymphoid apparatus of the appendix attains a higher differential development after the first six months, and these anatomic factors and the character of the food may prevent the occurrence of appendicitis in early infancy. In the entire 754 cases only three of the children were less than one year old and seventeen less than two years.

Injection Treatment of Varicose Veins.—Meisen treated fifty patients with varicose veins by local injection of 20 to 30 per cent sodium salicylate. The skin and surroundings of the varix were infiltrated with physiologic solution of sodium chloride immediately after the injection to neutralize any possible leakage from the vein. The only inconvenience of the treatment is necrosis caused by blundering technic resulting in emptying the syringe outside the vein. Chronic eczemas and ulcers of ten to twenty years' standing have been cured with no relapse under nine months of observation. He gives an illustrated description of his technic.

Finska Läkaresällskapets Handlingar, Helsingfors

68: 607-684 (July) 1926

*Epidemic Acute Nephritis. T. W. Tallqvist.—p. 607.
Structure of Tumor Cells in Fibroma and Sarcoma. H. Castrén.—p. 621.
Idem in Transplantable Mouse Sarcoma. H. Castren.—p. 644.
Comparative Biologic Tests of Fern Extracts. G. Bergroth.—p. 650.
*Coincidence of Tuberculosis and Cancer in the Stomach. R. Faltin.—p. 659.
Pharmacologic Research on Certain Barbituric Acid Derivatives. G. J. Östling.—p. 666.

Epidemic Nephritis.—Tallqvist discusses the question of the epidemic occurrence of acute nephritis. He agrees with Petrén that there is a form of acute kidney inflammation in which a "genius epidemicus" is apparent. This form is characterized by edema, a temporary increase of blood pressure, albuminuria with tube casts and red blood corpuscles, and in some cases occurrence of uremia. The prognosis is usually good, but sometimes the disease develops into chronic nephritis. He cites instances of this epidemic form of nephritis as it occurred in the trenches during the war, in Denmark and Sweden in 1915-1918, and in Finland in 1925. This form of nephritis may be due to a streptococcus infection with a special affinity for the kidney tissues. He succeeded in cultivating the streptococcus from the urine in one of the eighteen cases in the 1925 epidemic. The duration of the disease was from three and a half to twelve weeks, but sequelae were manifest in 31 per cent.

Tuberculosis plus Carcinoma in the Stomach.—Faltin reports a case of simultaneous gastric tuberculosis and cancer. He found only twelve cases previously described in the literature. He concludes, basing his opinion on histologic examinations, that the carcinoma had developed secondarily, in the margin of a tuberculous ulceration.

Hospitalstidende, Copenhagen

69: 485-508 (May 27) 1926

*Facial Paralysis as Birth Injury. S. Hindse-Nielsen.—p. 485. C'cn, p. 509.

Facial Paralysis from Birth Injury.—Hindse-Nielsen tabulates the details of twenty-two cases of facial paresis, mostly from forceps injury, direct or indirect. Delivery was natural in only two of the cases. The pelvis was contracted in four.

69: 509-532 (June 3) 1926

*Secretion in the Stomach in Gallstone Patients. E. Dahl-Iversen.—p. 517.

Gastric Secretion with Gallstones.—Dahl-Iversen reports that the secretion in the stomach was within normal range in 69 per cent of his 128 gallstone operation cases; there was hypochylia in 22 per cent and achylia in 9 per cent. He was unable to find any evidence that removal of the gallbladder has any influence on the secretory function of the stomach, or that an impacted gallstone in the cystic duct induces reflex achylia. The impaired gastric secretion that may be observed with gallstones is the result of increasing age, not of the lithiasis.

69: 613-636 (July 1) 1926

*Prenatal Care. S. A. Gammeltoft.—p. 613.

Prenatal Care.—Gammeltoft's experience warns that pneumonia is peculiarly dangerous for women in advanced pregnancy; they should be protected against acute infections during epidemics. Twenty-nine of the 121 deaths among the 14,633 women delivered during the last nine years were from intercurrent infections. Another lesson from his experience confirms that examination of the urine during pregnancy is not enough; the blood pressure may warn of danger before albuminuria appears. Two women died from cerebral hemorrhage; the urine had been repeatedly examined and found normal or was easily restored to normal, but the blood pressure had not been recorded. His material and the fine service rendered by the consultation station for pregnant women show the enormous importance of impressing on the public the necessity for regular examinations during pregnancy. The total mortality in his material of 14,633 maternity cases was 0.83 per cent, and his analysis shows that a large proportion of the deaths might have been averted if the women had been seen earlier.

69: 637-660 (July 8) 1926

*Streptococci on Normal and Diseased Skin. H. Haxthausen.—p. 637. C'cn, p. 670.
*Tumors in Skin from Foreign Bodies. H. C. S. Finsen.—p. 645.
*Sources of Error in Blood Grouping Tests. H. C. Gram and F. Thomasen.—p. 651.

Cultivation of Streptococci from the Skin.—Haxthausen states that crystal violet checks the growth of staphylococci while the streptococcus proliferates unhindered in both fluid mediums and on solid blood agar. Cultures from the skin can thus be made to yield a pure growth of the streptococcus.

Tumors from Foreign Bodies in the Skin.—Finsen's patient was riddled with scraps of aluminum as a set of cartridges used in signaling exploded as he was carrying them. The illustrations show the almost innumerable tumors that developed on the exposed areas from the metal scraps. Some suppurated and all were tender, incapacitating the man, and compelling final excision of the metal scraps.

Sources of Error in Blood Group Testing.—Gram and Thomasen report a series of researches which teach that it is necessary to make five preparations of each suspension as a safeguard against error. Also that the readings should be made both at the third and the tenth minutes. The serum and the suspension of corpuscles should be measured with a pipet to insure that the ratio is always 2:1.

69: 661-684 (July 15) 1926

*Immunizing Against Cancer Metastasis. J. Fibiger and P. Møller.—p. 661.
Dysenteric Hepatitis Without Suppuration. A. Buch.—p. 678.

Immunizing Against Metastasis of Cancer.—Fibiger and Møller injected subcutaneously a suspension of mouse embryonal tissue (skin) in 156 mice after a course of painting with tar to induce cancer. Serial sections of the lungs and lymph glands later showed metastasis of the experimental cancer in only half as many of the mice thus treated, and the metastases found were possibly less well developed in comparison to the 137 controls. Cancer developed in 127 of the 156 thus treated and in 102 of the 137 controls, the treatment not preventing the primary malignant disease, but metastases were found in 60 per cent of the controls, and in 32 per cent of the treated mice.

Norsk Magazin for Lægevidenskaben, Oslo

87: 665-752 (Aug.) 1926

*Aphorisms on Gynecology and Obstetrics. K. Brandt.—p. 665.
*Erythema Nodosum and Tuberculosis. Bydal.—p. 675.
Retroperitoneal Tumors. E. Hjort.—p. 686.
*Dyspepsia in Infants. K. Utheim Toverud.—p. 691.

Aphorisms on Gynecology and Obstetrics.—These ten pages of brief statements (in English) of the principles followed in the Oslo clinic were presented to the visiting members of the American Gynecological Society. Among them we note: "No masks. No gloves in clean cases; wear gloves outside the operating room. Colitis is very frequent; generally not recognized; diagnosed by mucus in evacuations after saline enema; treated by washing out rectum and colon with an enema consisting of 1 liter of saline solution, followed by 1 liter of lukewarm water with one teaspoonful tannin daily and for months. Neuralgia in the nerve at McBurney's point can generally be cured by injection of 1 cc. of a 50 per cent aqueous solution of antipyrine at the point corresponding to the intervertebral foramen of this nerve (right iliohypogastric). Many appendectomies are performed to cure neuralgia in this nerve. Remember the painful points and rheumatism of the abdominal wall before opening the abdomen on account of pains. With tubal pregnancy, the colostrum in the mammae aids in the diagnosis; an acute bleeding in a young subject does not require transfusion. It cannot be compared even with small chronic bleedings in the elderly. For thrombosis and white swelling, the foot of the bed is raised. After two weeks free from fever, gentle superficial massage to promote circulation of lymph, twice a day, for ten minutes, and passive movements of the joints. The thrombosed veins are left alone; no emboli in twenty years' experience.

"After birth of the child, the urine is drawn with a catheter at once, and a 1:500 solution of silver nitrate is used to rinse out the bladder. On the arrival of the patients in the clinic, 19 per cent had pus and 33 per cent bacteria in the urine. The indispensable condition for arresting postpartum hemorrhage is that the uterine cavity must be empty. Adherent membranes or tough blood clots can be removed only by the hand introduced into the uterus. This evacuates the material favoring growth of bacteria, while it stimulates the uterus to contract and drain, and dangerous anemia is warded off. Nothing must be allowed to counteract the contractions of the uterus; no packing or plugging. If the blood does not clot properly, compression of the aorta may prove useful. Women in childbed should lie on back or side, not sitting, for eleven or twelve days, and should be kept in the hospital for fourteen days, even if all is well. A full term, postpartum uterus does not disappear behind the symphysis pubis until the twelfth day at the earliest. The only contraindication for breast nursing admitted is tuberculosis. Neither grown-ups nor babies need night meals. Of the premature, 70 per cent leave the hospital with regularly increasing weight. The conditions for this success are a skilful nurse who is determined to have the baby live, breast milk, and no chilling. Rickets often postpones the menarche for years. The modern gynecologic clinic is the one where more than elsewhere stress is laid on prophylaxis."

Erythema Nodosum and Tuberculosis.—Bydal relates that 56.41 per cent of thirty-three women and six men who had erythema nodosum developed tuberculosis later (certain in 41 per cent, probable in 15.38 per cent). This suggests the necessity for keeping patients with erythema nodosum long under supervision. A tendency to it may give the clue in dubious clinical pictures suggesting tuberculosis.

Acute and Chronic Dyspepsia in Infants.—Toverud analyzes forty-five cases, emphasizing that quantitative and qualitative underfeeding, especially lack of vitamins, and parenteral infections were responsible for the chronic nutritional disturbance. Even a slight cold or cough may entail a clinical picture imposing as primary dyspepsia. In three of the infants necropsy revealed unsuspected pyelitis or an abscess, while the symptoms had been apparently merely those of dyspepsia. The only other infant that died had pneumonia and atrophy, secondary to feedings of only 44 to 70 calories per kilogram. All the other infants began to improve at once when given Frølich's "normal milk," which is rich in vitamins and calories. This is a ⅔ milk in water plus 4 per cent sugar, a tablespoonful cod liver oil and 1 tablespoonful malt extract, for the daily ration. This has far reaching consequences, Toverud adds, in the treatment of nutritional disturbances in young infants.

Ugeskrift for Læger, Copenhagen

88: 751-770 (Aug. 19) 1926

*The Main Tendencies in Modern Medicinal Treatment. K. Faber.—p. 751.
*Delivery with Dislocation of the Hip Joint. P. Verning.—p. 756.
*Neoglucose in Blood After Insulin. E. Rud.—p. 760.
*Infant Mortality in Denmark. J. Kuhn.—p. 763.

The Main Principles in Modern Therapeutics.—This is the Harvey Lecture delivered by Faber at New York, March 13, 1926.

The Pelvis in Hip Joint Dislocation Cases.—Verning gives serial roentgenograms in a case of bilateral congenital luxation of the hip joint. They show that when the legs were held in the usual obstetric position, the head of the femur protruded into the pelvis in such a way as to prevent the further passage of the head after it had passed the inlet. With adduction of the leg, the femoral head was twisted out of the way, and the obstacle to speedy delivery was removed. This experience was repeated in fifteen other cases. Petersen has reported two cases of dystocia from this cause. The parturient naturally would adduct the legs, but when under the influence of an anesthetic or when the legs are immobilized by the assistants, the saving adduction may not occur.

Neoglucose in Diabetic Blood After Insulin.—Rud accepts the assumption that the specific action of insulin in diabetes is the transformation of alpha and beta glucose into neoglucose.

Infant Mortality in Denmark.—Kuhn calls attention to the reduction of the infant death rate from 12.9 and 13.6 per cent in 1900 and 1901 to 8 per cent in 1925. He adds that the figures show further that the chances of the infants' surviving the first two years of life have correspondingly improved.